Paavai Engineering College

(Autonomous Institution, Approved by AICTE, Affiliated to Anna University, Chennai-25)

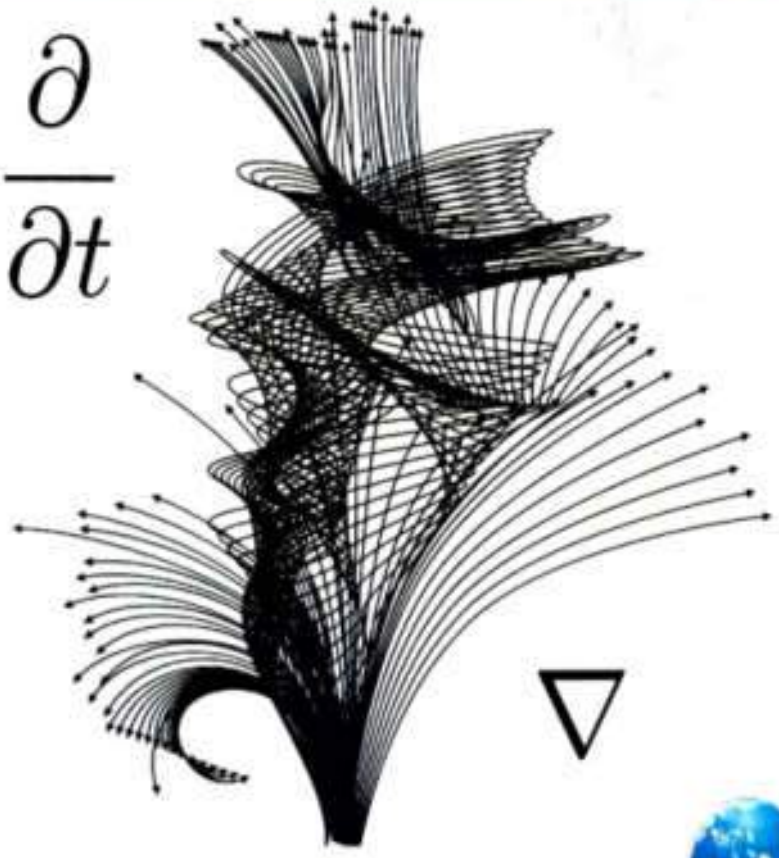
Criterion 3.4.4: Number of books published per teacher during the last five years

Dr. P. Jaykumar
Dr. B. Kishokkumar

Differential Equations And Complex Analysis

As per the Paavai Engineering College (Autonomous) Syllabus from 2016-17

For Second Semester B.E./ B.Tech. Students
(Common All Branches)



Global Publishers

Differential Equations and Complex Analysis

As per the Paavai Engineering College(Autonomous)
Syllabus for II Semester B.E/B.Tech Students
(Common To All Branches)

Revised Edition
2016 - 2017

Dr. P. JAYAKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College (Autonomous),
Pachal, Namakkal-637 018.

Dr. B. KISHOKKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Global Publishers
Chennai - 600088.

Copyright © 2016 by Global Publishers

All rights reserved. No part of this book shall be reproduced in any form photocopying or otherwise, without the written permission of the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

First Edition : 2016
Second Edition : 2017

DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS

ISBN 978-93-80170-31-2

Rs. 485.00

For Please Contact copies

Global Publishers
No:94, Saraswathi Nagar, 3rd Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858
Email: globalpublishers.india@gmail.com

Typeset at Lakshmi Info System, Chennai. Ph: 97890 80080

SYLLABUS

MA 15201 - DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS

UNIT – 1 : ORDINARY DIFFERENTIAL EQUATIONS

Higher order linear differential equations with constant coefficients – Method of variation of parameters – Cauchy's and Legendre's linear equations – Simultaneous first order linear equations with constant coefficients.

UNIT – 2 : VECTOR CALCULUS

Gradient, Divergence and Curl – Directional derivative – Irrotational and solenoidal vector fields – Vector integration – Green's theorem in a plane, Gauss divergence theorem and Stokes' theorem (excluding proofs) – Simple applications involving cubes and rectangular parallelopipeds.

UNIT – 3 : ANALYTIC FUNCTIONS

Functions of a complex variable – Analytic functions – Necessary conditions – Cauchy-Riemann equation and Sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Harmonic conjugate – Construction of analytic functions – Conformal mapping: w =z+c, cz, 1/z, and bilinear transformation.

UNIT – 4: COMPLEX INTEGRATION

Complex integration – Statement and applications of Cauchy's integral theorem and Cauchy's integral formula – Taylor's and Laurent expansions – Singular points – Residues – residue theorem – Application of residue theorem to evaluate real integrals – Unit circle and semi-circular contour (excluding poles on boundaries).

UNIT – 5 : LAPLACE TRANSFORM

Laplace transform – Condition for existence – Transform of elementary functions – Basic properties – Transforms of derivatives and integrals – Transforms of unit step function and impulse functions – Transform of periodic functions. Definition of Inverse Laplace transform as contour integral – Convolution theorem (excluding proof) – Initial and Final value theorems – Solution of linear ODE of second order with constant coefficients using Laplace transformation techniques.

Global Publishers

No:94, Saraswathi Nagar, 3rd Street,
Adambakkam, Chennai - 600 008
Mobile : 98840 98858
e-mail : globalpublishers.india@gmail.com

ISBN 978-93-80170-31-2

DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS

As per the Paavai Engineering College (Autonomous) Syllabus
For Second Semester B.E. / B.Tech Students
(Common to all Branches)

Global Publishers

Dr. P. Jayakumar
Dr. B. Kishokkumar

Differential Equations and Complex Analysis

As per the Paavai Engineering College(Autonomous)
Syllabus for II Semester B.E/B.Tech Students
(Common To All Branches)

Dr. P. JAYAKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College (Autonomous),
Pachal, Namakkal-637 018.

Dr. B. KISHOKKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Global Publishers
Chennai - 600088.

Copyright © 2016 by Global Publishers

All rights reserved. No part of this book shall be reproduced in any form photocopying or otherwise, without the written permission of the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

First Edition : 2016
Second Edition : 2017
Revised Edition : 2018

DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS
ISBN 978-93-80170-31-2

Rs. 495.00

For Please Contact copies

Global Publishers
No:94, Saraswathi Nagar, 3rd Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858
Email: globalpublishers.india@gmail.com

Typeset at Lakshmi Info System, Chennai. Ph: 97890 80080

SYLLABUS

MA 15201 - DIFFERENTIAL EQUATIONS AND COMPLEX ANALYSIS

UNIT – 1 : ORDINARY DIFFERENTIAL EQUATIONS

Higher order linear differential equations with constant coefficients – Method of variation of parameters – Cauchy's and Legendre's linear equations – Simultaneous first order linear equations with constant coefficients.

UNIT – 2 : VECTOR CALCULUS

Gradient, Divergence and Curl – Directional derivative – Irrotational and solenoidal vector fields – Vector integration – Green's theorem in a plane, Gauss divergence theorem and Stokes' theorem (excluding proofs) – Simple applications involving cubes and rectangular parallelopipeds.

UNIT – 3 : ANALYTIC FUNCTIONS

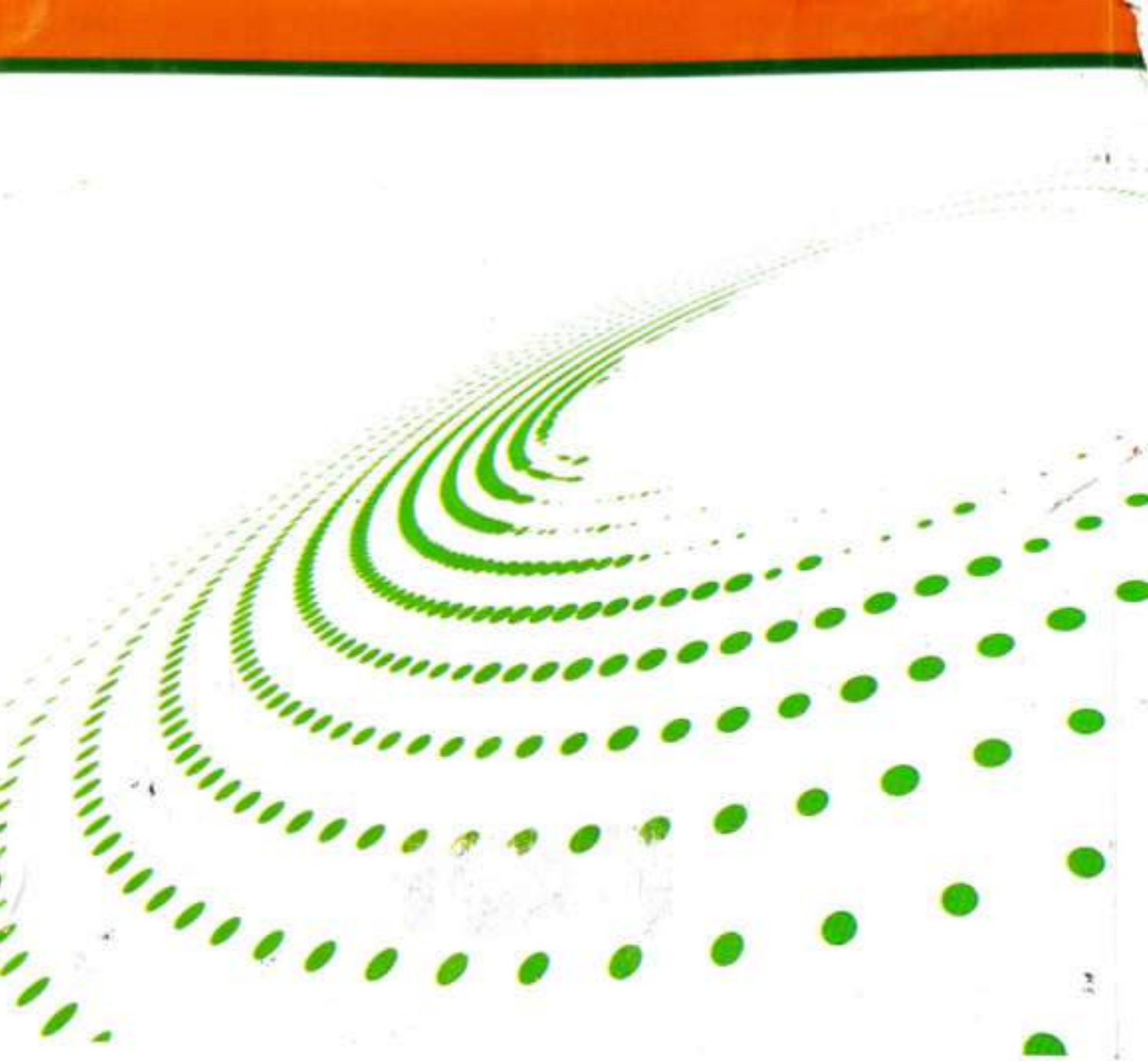
Functions of a complex variable – Analytic functions – ~~Necessary conditions~~ – Cauchy-Riemann equation ~~and Sufficient conditions~~ (excluding proofs) – Harmonic and orthogonal properties of ~~analytic function~~ – Harmonic conjugate – Construction of analytic functions – Conformal mapping: w =z+c, cz, 1/z, and bilinear transformation.

UNIT – 4: COMPLEX INTEGRATION

Complex integration – Statement and applications of Cauchy's integral theorem and Cauchy's integral formula – Taylor's and Laurent expansions – Singular points – Residues – residue theorem – Application of residue theorem to evaluate real integrals – Unit circle and semi-circular contour (excluding poles on boundaries).

UNIT – 5 : LAPLACE TRANSFORM

Laplace transform – ~~Condition for existence~~ – Transform of elementary functions – Basic properties – Transforms of derivatives and integrals – Transforms of unit step function and impulse functions – Transform of periodic functions. Definition of Inverse Laplace transform as contour integral – Convolution theorem (excluding proof) – Initial and Final value theorems – Solution of linear ODE of second order with constant coefficients using Laplace transformation techniques.



GLOBAL PUBLISHERS

No.94, Saraswathi Nagar, 3rd Street,
Adambakkam, Chennai - 600 088.
Mobile : 98840 98858 / 96001 75317
Email : globalpublishers.india@gmail.com

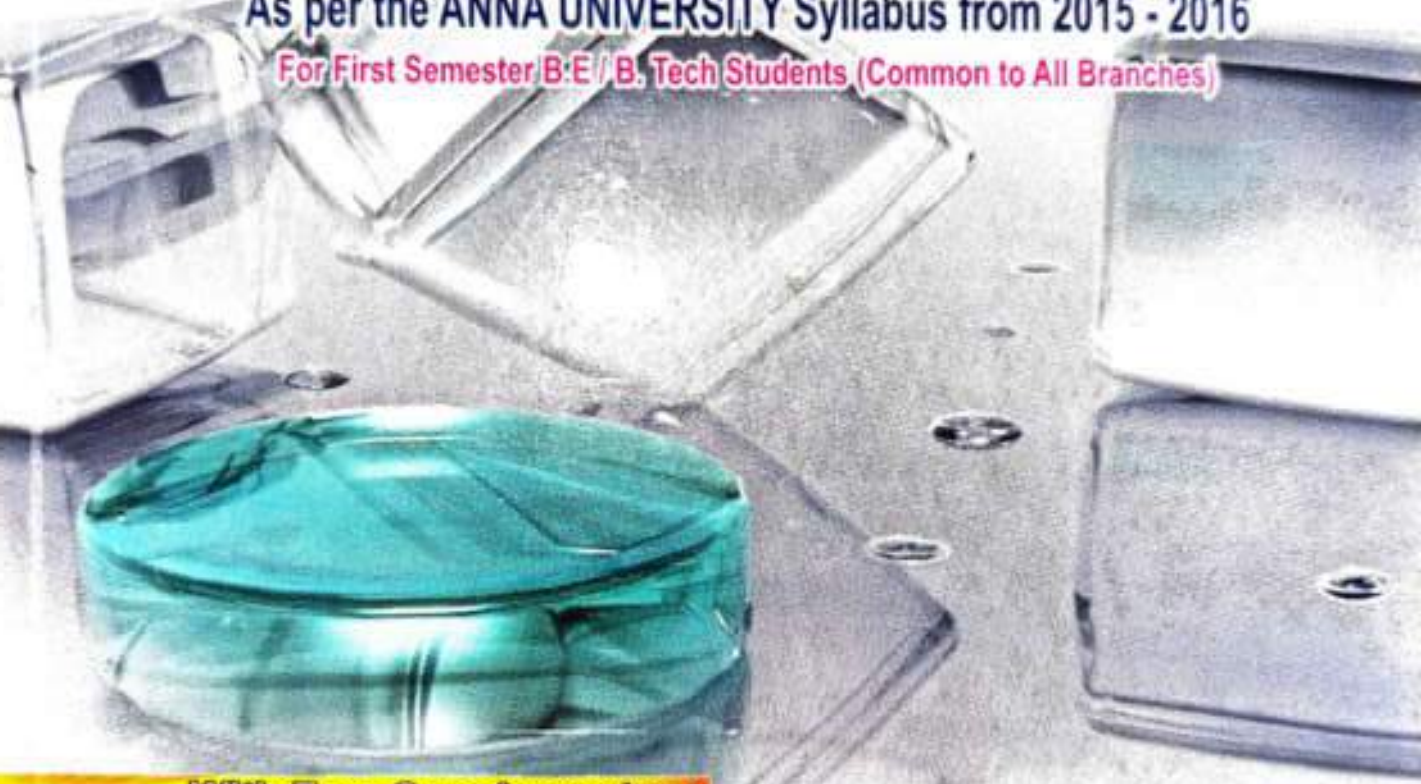
ISBN 978-93-80170-31-2

Updated Edition

ENGINEERING Mathematics-I

As per the ANNA UNIVERSITY Syllabus from 2015 - 2016

For First Semester B.E / B. Tech Students (Common to All Branches)



With Free Supplementary
Anna University
Solved Question Papers

P. Jayakumar
B. Kishokkumar
M. Vimala

Global Publishers

MATHEMATICS - I

As per the common Anna University Syllabus for
I Semester B.E/B.Tech Students
(Common To All Branches)

Revised Edition
2015-2016

Prof. P. JAYAKUMAR, M.Sc., M.Phil., (Ph.D)
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Prof. B. KISHOKKUMAR, M.Sc., M.Phil., (Ph.D)
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Prof. M. VIMALA, M.Sc., M.Phil
Department of Mathematics,
Paavaai College of Engineering,
Pachal, Namakkal-637 018.

Global Publishers
Chennai - 600 088.

Copyright © 2014 by Global Publishers

All rights reserved. No part of this book shall be reproduced in any form photocopying or otherwise, without the written permission of the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

First Edition : 2014
Second Edition : 2015

MATHEMATICS - I

ISBN 978-93-80170-46-6

Rs. 450.00

For Please Contact copies

Global Publishers
No:49/59, Masthan Gori Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858, 96001 - 75317
Email: globalpublishers.india@gmail.com

Typeset at Lakshmi Info System, Chennai.Ph: 9789080080

SYLLABUS

MA6151 - MATHEMATICS – I

UNIT – I : MATRICES

Eigen values and Eigen vectors of a real matrix – Characteristic equation – Properties of eigen values and eigen vectors – Statement and applications of Cayley – Hamilton Theorem – Diagonalization of matrices – Reduction of a quadratic form to canonical form by orthogonal transformation – Nature of quadratic forms.

UNIT – II : SEQUENCES AND SERIES

Sequences: Definition and examples - Series: Types and convergence - series of positive terms - Tests of convergence: Comparision test, Integral test and D' Alembert's ratio test - Alternating series - Leibnitz's test - Series of positive and negative terms - Absolute and conditional convergence.

UNIT – III : APPLICATIONS OF DIFFERENTIAL CALCULUS

Curvature in Cartesian co-ordinates - Centre and radius of curvature - Circle of curvature - Evolutes - Envelopes - Evolute as Envelope of Normals.

UNIT – IV : DIFFERENTIAL CALCULUS OF SEVERAL VARIABLES

Limits and Continuity - Partial derivatives - Total derivative - Differentiation of implicit functions - jacobian and properties - Taylor's series for functions of two variables - Maxima and minima of functions of two variables - Lagrange's method of undetermined multipliers.

UNIT – V: MULTIPLE INTEGRALS

Double integrals in cartesian and polar coordinates - Change of order of integration - Area enclosed by plane curves - Change of variables in double integrals - Area of a curved surface - Triple integrals - Volume of Solids.

Global Publishers
No: 94, Saraswathi Nagar,
3rd Street, Adambakkam, Chennai - 600088.
Mobile : 98840 98858 / 99627 77903 / 96001 75317
e-mail: globalpublishers.india@gmail.com

ISBN 978-93-80170-46-6

ANNA UNIVERSITY SOLVED QUESTION PAPERS

FREE BOOKLET

MATHEMATICS-II

As per the Anna University Syllabus
from 2015 - 2016
For Second Semester B.E. / B.Tech Students
(Common to all Branches)

P. JAYAKUMAR
Dr. B. KISHOKKUMAR
M. VIMALA

Global Publishers

MATHEMATICS - II

As per the common Anna University Syllabus for
II Semester B.E/B.Tech Students
(Common To All Branches)

Revised Edition
2015-2016

Prof. P. JAYAKUMAR, M.Sc., M.Phil., (Ph.D)
Department of Mathematics,
Paavai Engineering College (Autonomous),
Pachal, Namakkal-637018.

Dr. B. KISHOKKUMAR, M.Sc., M.Phil., Ph.D
Department of Mathematics,
Paavai Engineering College (Autonomous),
Pachal, Namakkal-637018.

Prof. M. VIMALA, M.Sc., M.Phil
Department of Mathematics,
Paavaai Group of Institutions,
Pachal, Namakkal-637018.

Global Publishers
Chennai - 600088.

Copyright © 2013 by Global Publishers

All rights reserved. No part of this book shall be reproduced in any form photocopying or otherwise, without the written permission of the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

First Edition : 2013
Second Edition : 2014
Third Edition : 2016

MATHEMATICS - II

ISBN 978-93-80170-31-2

Rs. 480.00

For Please Contact copies

Global Publishers
No:94, Saraswathi Nagar, 3rd Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858
Email: globalpublishers.india@gmail.com

Typeset at Lakshmi Info System, Chennai.Ph: 9789080080

SYLLABUS

MA6251 - MATHEMATICS – II

UNIT – I : VECTOR CALCULUS

Gradient, divergence and curl – Directional derivative – Irrotational and solenoidal vector fields – Vector integration – Green's theorem in a plane, Gauss divergence theorem and Stokes' theorem (excluding proofs) – Simple applications involving cubes and rectangular parallelopipeds.

UNIT – II : ORDINARY DIFFERENTIAL EQUATIONS

Higher order linear differential equations with constant coefficients – Method of variation of parameters – Cauchy's and Legendre's linear equations – Simultaneous first order linear equations with constant coefficients.

UNIT – III : LAPLACE TRANSFORM

Laplace transform – Sufficient condition for existence – Transform of elementary functions – Basic properties – Transforms of derivatives and integrals of functions - Derivatives and integrals of transforms - Transforms of unit step function and impulse functions – Transform of periodic functions. Inverse Laplace transform -Statement of Convolution theorem – Initial and final value theorems – Solution of linear ODE of second order with constant coefficients using Laplace transformation techniques.

UNIT – IV : ANALYTIC FUNCTIONS

Functions of a complex variable – Analytic functions: Necessary conditions – Cauchy-Riemann equations and sufficient conditions (excluding proofs) – Harmonic and orthogonal properties of analytic function – Harmonic conjugate – Construction of analytic functions – Conformal mapping: $w = z+k$, kz, $1/z$, z^2, e^z and bilinear transformation.

UNIT – V: COMPLEX INTEGRATION

Complex integration – Statement and applications of Cauchy's integral theorem and Cauchy's integral formula – Taylor's and Laurent's series expansions – Singular points – Residues – Cauchy's residue theorem – Evaluation of real definite integrals as contour integrals around unit circle and semi-circle (excluding poles on the real axis).

GLOBAL PUBLISHERS
No.94, Saraswathi Nagar, 3rd Street,
Adambakkam, Chennai - 600 088.
Mobile : 98840 98858 / 96001 75317
Email : globalpublishers.india@gmail.com

ISBN 978-93-80170-31-2

MATRICES AND CALCULUS

As per the Paavai Engineering College (Autonomous)
Syllabus from 2015
For First Semester B.E. / B.Tech Students
(Common to all Branches)

Dr. P. Jayakumar
Dr. B. Kishokkumar

Global Publishers

MATRICES AND CALCULUS

As per the Paavai Engineering College(Autonomous) Syllabus for CBCS I Semester B.E/B.Tech Students (Common To All Branches)

Revised Edition
2017-2018

Dr. P. JAYAKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Dr. B. KISHOKKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Global Publishers
Chennai - 600 088.

Copyright © 2015 by Global Publishers

All rights reserved. No part of this book shall be reproduced in any form photocopying or otherwise, without the written permission of the publisher. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

First Edition : 2015
Second Edition : 2016
Revised Edition : 2017

MATRICES AND CALCULUS

ISBN: 978-93-80170-47-3

Rs. 485.00

For Please Contact copies

Global Publishers
No:94, Saraswathi Nagar, 3rd Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858
Email: globalpublishers.india@gmail.com

Typeset at Lakshmi Info System, Chennai. Ph: 97890 80080

SYLLABUS

MA 16101 - MATRICES AND CALCULUS

UNIT – I : MATRICES

Characteristic equation – Eigen values and Eigen vectors of a real matrix – Properties – Cayley – Hamilton Theorem (excluding proof) – Orthogonal transformation of a symmetric matrix to diagonal form - Quadratic form – Reduction of quadratic form to canonical form by orthogonal transformation

UNIT – II : DIFFERENTIAL CALCULUS

Limit – Continuity, properties of limit and classification of discontinuities – Simple problems. Differentiation – Standard forms, Successive differentiation and Leibnitz theorem. Mean value theorem, Rolle's theorem using first and second derivation test.

UNIT – III : FUNCTIONS OF SEVERAL VARIABLES

Partial derivatives - Euler's theorem for homogenous function - Total derivative - Differentiation of implicit functions - jacobians - Taylor's expansion - Maxima and minima - Method of Lagrangian multipliers.

UNIT – IV : INTEGRAL CALCULUS

Indefinite and definite integrals - Standard form of integrals, properties of integrals, integration of simple function. Methods of integration - Decomposition method, substitution method, integration by parts - Reduction formulae involving exponential and trigonometric functions, Bernoulli's formula.

UNIT – V: MULTIPLE INTEGRALS

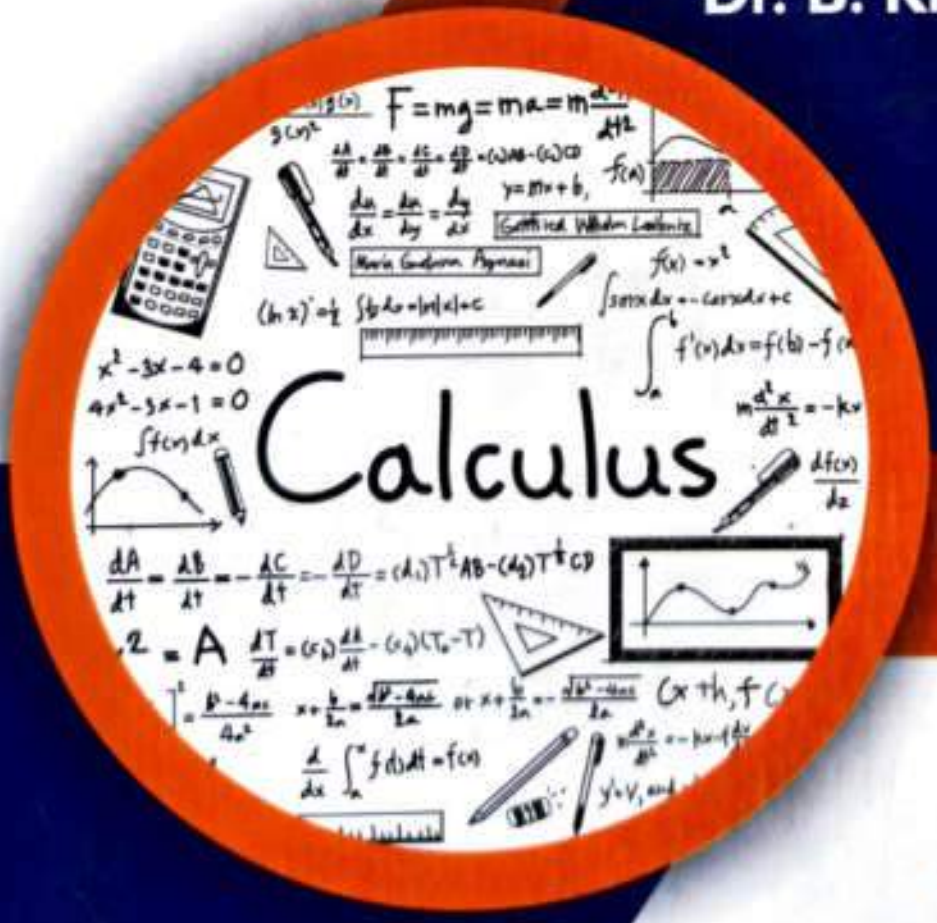
Double integrals - Cartesian and polar co-ordinates - Change of order of integration - Change of variables between Cartesian and polar co-ordinates - Triple integration in Cartesian co-ordinates - Area as double integral - Volume as triple integral.

GLOBAL PUBLISHERS
No.94, Saraswathi Nagar, 3rd Street,
Adambakkam, Chennai - 600 088.
Mobile : 98840 98858
Email : globalpublishers.india@gmail.com

MATRICES AND CALCULUS

As per the Paavai Engineering College (Autonomous)
Syllabus from 2015 For First Semester B.E. / B.Tech Students
(Common to all Branches)

Dr. P. Jayakumar
Dr. B. Kishokkumar



Global Publishers

MATRICES.

MATRICES AND CALCULUS

MATHS/.

As per the Paavai Engineering College(Autonomous) Syllabus for CBCS I Semester B.E/B.Tech Students (Common To All Branches)

Revised Edition
2018-2019

Dr. P. JAYAKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Dr. B. KISHOKKUMAR, M.Sc., M.Phil., Ph.D.,
Professor,
Department of Mathematics,
Paavai Engineering College, (Autonomous)
Pachal, Namakkal-637 018.

Global Publishers
Chennai - 600 088.

Copyright © 2015 by Global Publishers

All rights reserved. No part of this book shall be reproduced i
any form photocopying or otherwise, without the written permission o
the publisher. No patent liability is assumed with respect to the use o
the information contained herein. Although every precaution has bee
taken in the preparation of this book, the publisher and author assum
no responsibility for errors or omissions. Nor is any liability assume
for damages resulting from the use of the information contained herei

First Edition : 2015
Second Edition : 2016
Revised Edition : 2017
Revised Edition : 2018

MATRICES AND CALCULUS
ISBN: 978-93-80170-47-3

Rs. 497.00

For Please Contact copies

Global Publishers
No:94, Saraswathi Nagar, 3rd Street,
Adambakkam,
Chennai - 600088.
Ph: 98840 - 98858
Email: globalpublishers.india@gmail.com

SYLLABUS

MA 16101 - MATRICES AND CALCULUS

UNIT – I : MATRICES

Characteristic equation – Eigen values and Eigen vectors of a real matrix – Properties – Cayley – Hamilton Theorem (excluding proof) – Orthogonal transformation of a symmetric matrix to diagonal form - Quadratic form – Reduction of quadratic form to canonical form by orthogonal transformation

UNIT – II : DIFFERENTIAL CALCULUS

Limit – Continuity, properties of limit and classification of discontinuities – Simple problems. Differentiation – Standard forms, Successive differentiation and Leibnitz theorem. Mean value theorem, Rolle's theorem using first and second derivation test.

UNIT – III : FUNCTIONS OF SEVERAL VARIABLES

Partial derivatives - Euler's theorem for homogenous function - Total derivative - Differentiation of implicit functions - jacobians - Taylor's expansion - Maxima and minima - Method of Lagrangian multipliers.

UNIT – IV : INTEGRAL CALCULUS

Indefinite and definite integrals - Standard form of integrals, properties of integrals, integration of simple function. Methods of integration - Decomposition method, substitution method, integration by parts - Reduction formulae involving exponential and trigonometric functions, Bernoulli's formula.

UNIT – V: MULTIPLE INTEGRALS

Double integrals - Cartesian and polar co-ordinates - Change of order of integration - Change of variables between Cartesian and polar co-ordinates - Triple integration in Cartesian co-ordinates - Area as double integral - Volume as triple integral.

Global Publishers

GLOBAL PUBLISHERS
No.94, Saraswathi Nagar, 3rd Street,
Adambakkam, Chennai - 600 088.
Mobile : 98840 98858
Email : globalpublishers.india@gmail.com

ISBN 978-93-80170-31-2

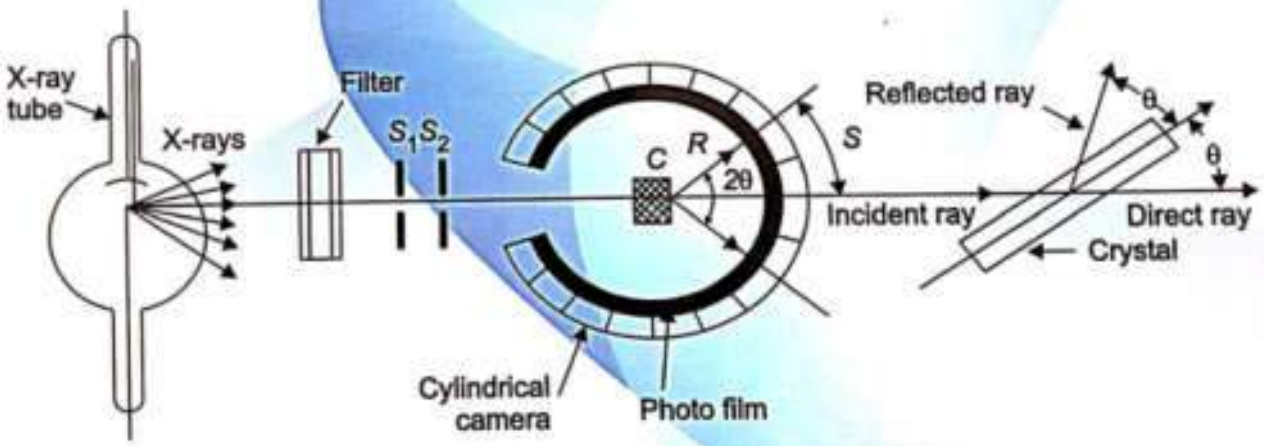
First Edition

ENGINEERING PHYSICS

As per the **Paavai Engineering College** (Autonomous)
Syllabus from 2015-2016

For I Semester B.E / B.Tech Students
(Common to All Branches)

Regulation - 2015



S. VADIVEL
Dr. A. PANNEERSELVAM

Jaitech Publications

ENGINEERING PHYSICS

As per the Paavai Engineering College (Autonomous)

Syllabus from 2015 - 2016

For I Semester B.E./B.Tech. Students

(Common to all Branches)

Regulation - 2015

S. Vadivel M.Sc., M.Phil., (Ph.D)

Associate Professor & Head

Department of Physics

Paavai Engineering College (Autonomous)

Pachal, Namakkal - 637 018

Dr. A. Panneerselvam M.Sc., M.Phil., Ph.D.,

Associate Professor

Department of Physics

Paavai Engineering College (Autonomous)

Pachal, Namakkal - 637 018

Jaitech Publications

© All rights reserved by the publisher

First Edition: August 2015

This book or part thereof should not be reproduced in any form without the written permission of the authors.

ISBN : 978-93-85374-19-7

Price ₹ 397/-

Published by:

VISHNU PRINTS MEDIA
A3-F1, 11th Street,
Eri Scheme, Mogappair, Chennai - 600 037
E-mail: vpmgroups@gmail.com
Phone: 044-26496164, Cell: 9566203440

Marketing by:

JAITECH PUBLICATIONS
Plot No. 14 Lakshmi Kanthammal 1st Street
Rajiv Nagar, Vanagaram, Chennai - 600 077
Phone (Off): 044-2349 6142 / 143 / 144
Telefax: 044-26496140
Email: skhengg1999@gmail.com
www.srikrishnagroup.biz

Typesetting at: **Aksharaa Muthra Aalayam**, Chennai - 18, Ph: 2436 4303

CONTENTS

1. PROPERTIES OF MATTER		**1.1 - 1.66**
1.1	Introduction	1.2
1.2	Classification of Elastic Materials	1.2
1.3	Stress and Strain	1.3
1.4	Hooke's Law	1.7
1.5	Elastic and Plastic Limit	1.7
1.6	Three Modulii of Elasticity	1.11
1.7	Bending of Beams	1.22
1.8	Cantilever	1.26
1.9	Young's Modulus - Uniform Bending	1.31
1.10	Non-uniform Bending	1.38
1.11	I-Shaped Girders	1.41
1.12	Twisting Couple of A Wire or Cylinder	1.42
1.13	Torsional Pendulum	1.45
	Solved Problems	1.50
	Part - A: Two Marks Questions and Answers	1.60
	Part - B Questions	1.65
	Problems for Practice	1.66
2. ACOUSTICS		**2.1 - 2.47**
2.1	Introduction	2.2
2.2	Sound	2.2
2.3	Characteristics of Musical Sound	2.5
2.4	Weber-Fechner Law (Relation between intensity of sound and loudness)	2.7
2.5	Decibels	2.8
2.6	Reverberation and Reverberation Time	2.11
2.7	Absorption Coefficient and Average Absorption Coefficient	2.12
2.8	Sabine's Formula for Reverberation Time [Rate of Growth and Rate of Decay]	2.14
2.9	Determination of Absorption Coefficient	2.21
2.10	Acoustics of Building	2.24
	Solved Problems	2.30
	Part - A: Two Marks Questions and Answers	2.43

Part - B Questions 2.46
Problems for Practice 2.47

3. ULTRASONICS 3.1 - 3.41

3.1 Introduction 3.2
3.2 Production of Ultrasonics 3.2
3.4 Piezo-electric Effect and Inverse Piezo-electric Effect 3.6
3.5 Detection of Ultrasonic Waves 3.12
3.6 Determination of Velocity of Ultrasonic Waves in Liquids Using Acoustic Grating 3.13
3.7 Application of Ultrasonic Waves – Sonar 3.16
3.8 Properties of Ultrasonic Waves 3.19
3.9 Classification of Testing on Material 3.19
Solved Problems 3.24
Part - A: Two Marks Questions and Answers 3.33
Part - B Questions 3.38
Problems for Practice 3.41

4. MODERN PHYSICS 4.1 - 4.58

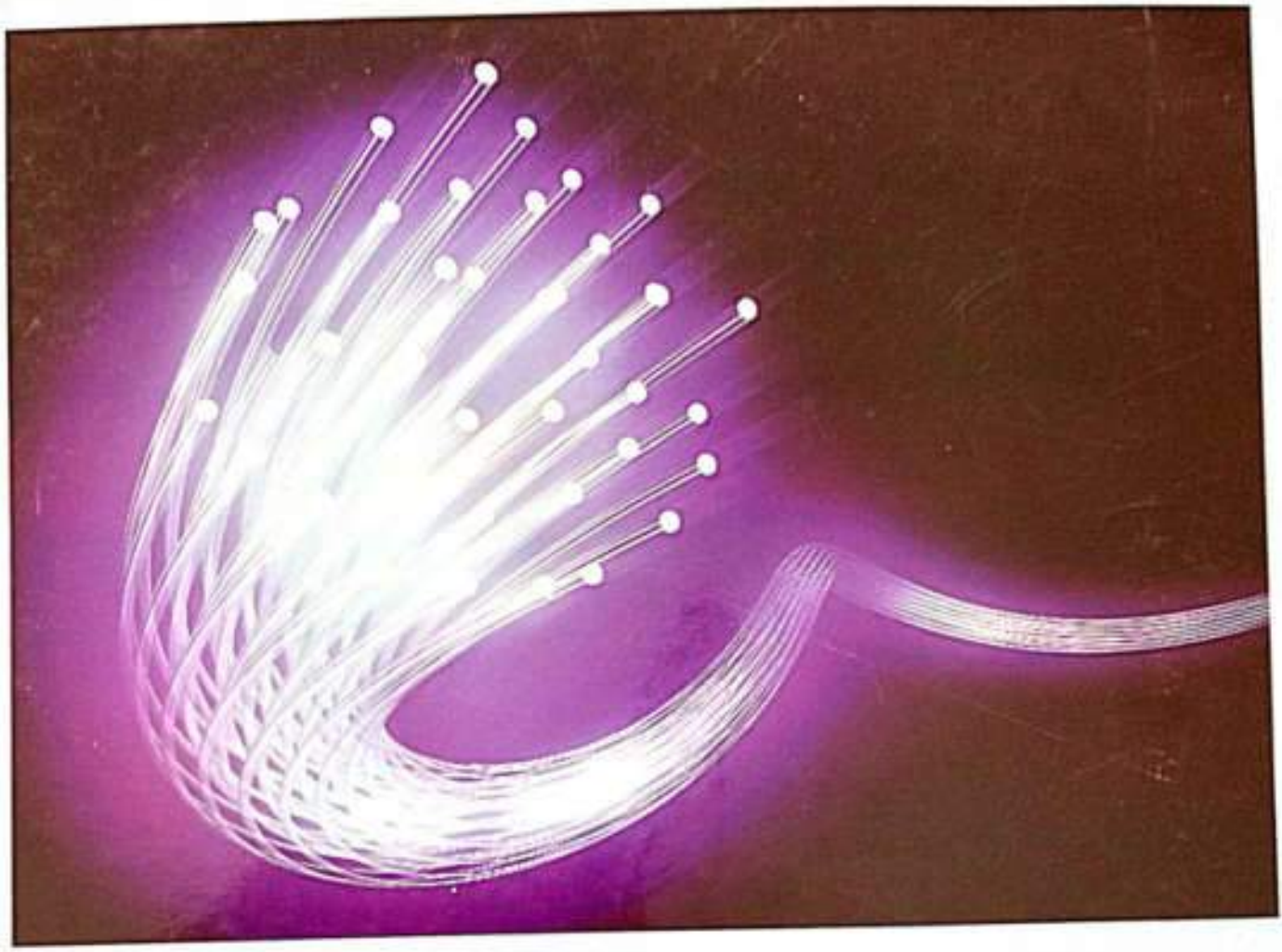
4.1 Introduction 4.2
4.2 Black Body Radiation 4.2
4.3 Planck's Quantum Theory of Black Body Radiation 4.6
4.4 Scattering of X-rays 4.11
4.5 Dual Nature of Radiation (Light) and Matter (Particle) – Matter Waves 4.20
4.6 Wave Function (ψ) 4.26
4.7 Schroedinger Wave Equation 4.27
4.8 Particle in a One Dimensional Box 4.32
4.9 Degenerate And Non-degenerate State 4.38
Solved Problems 4.41
Part - A: Two Marks Questions and Answers 4.49
Part - B Questions 4.56
Problems for Practice 4.58

5. INTERFERENCE 5.1 - 5.24

5.1 Introduction 5.2
5.2 Michelson's Interferometer 5.2

5.3	Application of Michelson's Interferometer	5.6
5.4	Determination of Wavelength of a Monochromatic Source	5.7
5.5	Determine the Thickness of a Thin Transparent Sheet	5.7
5.6	Air Wedge	5.8
	Solved Problems	5.14
	Part - A: Two Marks Questions and Answers	5.21
	Part - B Questions	5.23
	Problems for Practice	5.24
6. LASER		**6.1 - 6.48**
6.1	Introduction	6.2
6.2	Characteristics of Laser	6.2
6.3	Absorption, Spontaneous Emission And Stimulated Emission	6.6
6.4	Principle of Laser	6.13
6.5	Population Inversion	6.13
6.6	Different Methods of Achieving Population Inversion	6.15
6.7	Metastable State	6.17
6.8	Main Components for any Laser	6.18
6.9	Types of Lasers	6.19
	Solved Problems	6.33
	Part - A: Two Marks Questions and Answers	6.40
	Part - B Questions	6.47
	Problems for Practice	6.48
7. FIBRE OPTICS		**7.1 - 7.48**
7.1	Introduction	7.2
7.2	Optical Fibre	7.2
7.3	Principle of Propagation of Light in Optical Fibre	7.4
7.4	Propagation of Light in Optical Fibres	7.5
7.5	Types of Optical Fibres	7.9
7.6	Classification of Optical Fibre based on Material Used	7.10
7.7	Classification of Optical Fibres based on the Number of Modes	7.11
7.8	Classification of Optical Fibres based on the Refractive Index Profile	7.13
7.11	Fibre Optic Communication System	7.20
7.12	Fibre Optic Sensors	7.22
7.13	Fibre Optic Temperature Sensor (FOTS)	7.24

7.14	Displacement Sensor	7.25
7.15	Endoscope	7.26
	Solved Problems	7.29
	Part - A: Two Marks Questions and Answers	7.39
	Part - B Questions	7.46
	Problems for Practice	7.48
8. CRYSTAL PHYSICS		**8.1 - 8.77**
8.1	Introduction	8.3
8.2	Solids	8.3
8.3	Lattice and Space Lattice	8.6
8.4	Unit Cell and its Lattice Parameters	8.7
8.5	Crystal Systems	8.10
8.6	Bravais Lattice	8.13
8.7	Basis and Crystal Structure	8.15
8.8	Lattice Planes	8.16
8.9	Miller Indices	8.16
8.10	Crystal Parameters	8.23
8.11	Simple Cubic (SC) Structure	8.24
8.12	Body Centered Cubic Structure	8.27
8.13	Face Centered Cubic Structure (FCC)	8.30
8.14	Hexagonal Closed Packed Structure (HCP)	8.34
8.15	Relation Between Lattice Constant and Density (ρ)	8.40
8.16	X-Ray Diffraction	8.41
8.17	Determination of Crystal Structure	8.43
8.18	Crystal Growth	8.48
	Solved Problems	8.53
	Part - A: Two Marks Questions and Answers	8.69
	Part - B Questions	8.75
	Problems for Practice	8.77



Marketed by

Jaitech Publications

No: 14, Lakshmikanthammal 1st Street, Rajiv Nagar,
Vanagaram, Chennai - 600 077.
Phone : 2649 6142 / 43 / 44 Telefax +91 44 2649 6140

ISBN 978-93-85374-19-7

New Edition

ENGINEERING PHYSICS

As per the **Paavai Engineering College** (Autonomous) Syllabus

(For I Semester B.E / B.Tech Students)

Regulation 2019

Dr. S. Vadivel

SRI KRISHNA TRADERS

ENGINEERING PHYSICS

As per the Paavai Engineering College (Autonomous) syllabus

For First Semester B.E./B.Tech. Students

Regulation 2019

Dr. S. Vadivel M.Sc.,M.Phil., Ph.D
Professor & Head
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

Sri Krishna Traders

© All rights reserved by the publisher

First Edition: August 2019

This book or part thereof should not be reproduced in any form without the written permission of the authors.

ISBN : 978-93-87300-02-6

Price ₹ 495/-

For copies please contact:

Sri Krishna Traders
Plot No.14, Lakshmi Karithammal I[st] Street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.skhpl.com

Published by: **Sri Krishna Traders**
Typesetting at: **Aksharaa Muthra Aalayam**, Chennai - 18, Ph: 2436 4303

CONTENTS

1. PROPERTIES OF MATTER

1.1 Introduction 1.1
1.2 Classification of elastic materials 1.1
1.3 Stress and strain 1.2
1.3.1 Stress 1.2
1.3.2 Strain 1.3
1.4 Hooke's law 1.6
1.5 Elastic and plastic limit 1.6
1.5.1 Stress - strain diagram 1.6
1.6 Poisson's ratio (σ) 1.8
1.6.1 Application of Poisson's effect 1.10
1.7 Workdone in stretching a wire 1.11
1.8 Workdone in twisting a wire 1.12
1.9 Twisting couple of a wire or cylinder 1.13
1.10 Torsional pendulum 1.15
1.10.1 Determination of rigidity modulus of the wire using torsional pendulum 1.18
1.10.2 Uses of torsional pendulum 1.20
Solved problems 1.21
Part - A: Two marks questions and answers 1.26
Part B Questions 1.29
Problems for practice 1.29

2. VISCOSITY

2.1 Introduction 2.1
2.2 Viscosity 2.1
2.3 Coefficient of viscosity of a liquid 2.2
2.4 Streamline flow (Laminar flow) and turbulent flow 2.4
2.5 Reynolds number 2.6
2.6 Poiseuille's formula for steady flow of a liquid through a capillary tube 2.6
2.7 Experimental determination of viscosity of a liquid 2.10
2.8 Variation of viscosity of a liquid with temperature 2.13
2.9 Applications of viscosity 2.14
Solved problems 2.15
Part - A: Two marks questions and answers 2.19
Part B Questions 2.23
Problems for practice 2.23

3. ULTRASONICS

3.1 Introduction 3.1
3.2 Sound 3.1
3.2.1 Classification of sound 3.1
3.3 Production of ultrasonics 3.2
3.3.1 Magnetostriction effect 3.2
3.3.2 Magnetestriction oscillator 3.3
3.3.3 Advantages and disadvantages of magnetostriction oscillators 3.5
3.4 Piezo-electric effect and inverse piezo-electric effect 3.6
3.4.1 Piezo-electric effect 3.6
3.4.2 Inverse piezo-electric effect 3.7
3.4.3 Piezo-electric crystals 3.7
3.4.4 X - cut and Y - cut crystal 3.8
3.4.5 Piezo-electric generator or oscillator 3.9
3.4.6 Advantages and disadvantages of piezo-electric oscillator 3.11
3.5 Determination of velocity of ultrasonic waves in liquids using acoustic grating 3.12
3.6 Application of ultrasonic waves – SONAR 3.15
3.7 Properties of ultrasonic waves 3.18
3.8 Classification of testing on material 3.18
3.8.1 Non Destructive Testing (NDT) 3.19
3.8.2 Types of NDT 3.19
3.8.3 Ultrasonic flaw detector – Pulse echo system through transmission and Reflection modes 3.20
3.9 Industrial Applications of ultrasonics 3.23
3.9.1 Ultrasonic welding 3.23
3.9.2 Ultrasonic drilling and cutting 3.25
3.10 Sonogram 3.27
Solved problems 3.40
Part - A: Two marks questions and answers 3.38
Part B Questions 3.44
Problems for practice 3.45

4. MODERN PHYSICS

4.1 Introduction 4.1
4.2 Black body radiation 4.1
4.2.1 Energy distribution of black body radiation 4.2
4.2.2 Laws of black body radiation 4.3
4.3 Planck's quantum theory of black body radiation 4.5

4.3.1 Planck's law of radiation 4.6
4.3.2 Derivation of Planck's law of radiation 4.7
4.4 Compton effect 4.9
4.4.1 Theory of Compton effect 4.10
4.5 Dual nature of radiation (Light) and matter (Particle) – Matter waves 4.16
4.5.1 Matter waves or de-Broglie waves 4.16
4.5.2 Derivation of de-Broglie wavelength 4.16
4.5.3 de-Broglie wavelength in terms of energy 4.17
4.5.4 de-Broglie wavelength associated with electrons (or) de-Broglie wavelength in terms of voltage 4.18
4.5.5 de-Broglie wavelength in terms of temperature 4.19
4.5.6 Properties of matter waves 4.20
4.6 Wave function (ψ) 4.21
4.6.1 Physical significance of the wave function ψ 4.21
4.7 Schroedinger wave equation 4.23
4.7.1 Schroedinger time independent wave equation 4.23
4.7.2 Schroedinger time dependent wave equation 4.26
4.8 Particle in a one dimensional box 4.28
4.9 Degenerate and Non-degenerate state 4.34
4.9.1 Degenerate state 4.34
4.9.2 Non-degenerate state 4.35
Solved problems 4.37
Part - A: Two marks questions and answers 4.44
Part B Questions 4.49
Problems for practice 4.50

5. LASER

5.1 Introduction 5.1
5.2 Characteristics of laser 5.1
5.3 Stimulated absorption, Spontaneous emission and Stimulated emission 5.5
5.4 Principle of laser 5.9
5.5 Population inversion 5.9
5.6 Different methods of achieving population inversion 5.11
5.7 Metastable state 5.13
5.8 Main components for any laser 5.14
5.9 Types of lasers 5.15
5.9.1 Nd-YAG laser 5.15
5.9.2 Carbon di-oxide (CO_2) laser 5.19

5.9.3 Semiconductor laser 5.25
5.9.4 Hetero junction semiconductor laser 5.25
Solved problems 5.29
Part - A: Two marks questions and answers 5.34
Part B Questions 5.41
Problems for practice 5.42

6. FIBRE OPTICS

6.1 Introduction 6.1
6.2 Optical fibre 6.1
6.2.1 Structure of optical fibre 6.2
6.3 Principle of propagation of light in optical fibre 6.3
6.4 Propagation of light in optical fibres 6.4
6.5 Types of optical fibres 6.8
6.6 Classification of optical fibre based on material used 6.9
6.7 Classification of optical fibres based on the number of modes 6.10
6.8 Classification of optical fibres based on the refractive index profile 6.12
6.11 Fibre optic communication system 6.19
6.11.1 Advantages of fibre optic communication 6.20
6.12 Applications of optical fibers 6.21
6.12.1 Medical field 6.21
6.12.2 Engineering field 6.22
Solved Problems 6.22
Part - A: Two marks questions and answers 6.32
Part B Questions 6.39
Problems for practice 6.40

7. CRYSTAL PHYSICS

7.1 Introduction 7.1
7.2 Solids 7.1
7.3 Lattice and space lattice 7.4
7.4 Unit cell and its lattice parameters 7.5
7.4.1 Lattice parameters 7.7
7.4.2 Primitive cell 7.8
7.4.3 Non primitive cell 7.8
7.5 Crystal systems 7.8
7.6 Bravais lattice 7.11
7.7 Basis and crystal structure 7.13
7.8 Lattice planes 7.14

7.9 Miller indices 7.14
7.9.1 Procedure to find the Miller indices of the plane 7.15
7.9.2 Some crystal planes in cubic system 7.16
7.9.3 Relation between the interplaner distance and interatomic distance 7.17
7.9.4 Important features of miller indices 7.20
7.10 Crystal parameters 7.21
7.11 Simple Cubic (SC) structure 7.22
7.12 Body Centered Cubic (BCC) structure 7.25
7.13 Face Centered Cubic (FCC) structure 7.28
7.14 Hexagonal Closed Packed (HCP) structure 7.32
7.15 Relation between lattice constant and density (ρ) 7.38
7.16 Crystal growth 7.39
7.16.1 Methods of crystal growth 7.39
7.16.2 Melt growth technique 7.40
Solved problems 7.44
Part - A: Two marks questions and answers 7.59
Part B Questions 7.65
Problems for practice 7.66
End Semester questions I-12
Model Question Paper I-2

For online purchase

Assendo Book Bazaar .com

www.assendobookbazaar.com

Marketed by

SRI KRISHNA TRADE

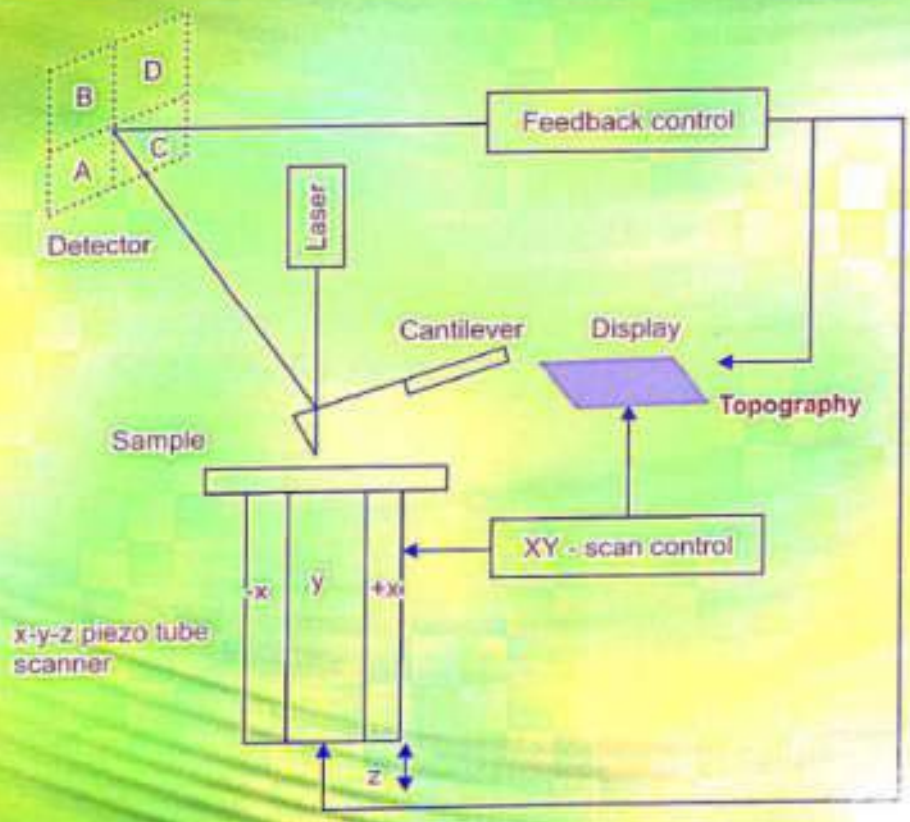
115/4A,-2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi, Chennai - 600 077.
Ph: 044 26496 140 | 142 | 143
Cell: 9566203440 | 9444542032 | 9884975682
skhengg1999@gmail.com | www.assendobookbazaar.com

ENGINEERING
PHYSICS-II

As per the **Paavai Engineering College** (Autonomous) Syllabus

(For II Semester B.E / B.Tech Students)

Regulation - 2015



S. VADIVEL
Dr. A. PANNEERSELVAM

Jaitech Publications

ENGINEERING PHYSICS - II

As per the Paavai Engineering College (Autonomous) syllabus from 2015 - 2016

For Second Semester B.E./B.Tech. Students

Regulation 2015

S. Vadivel M.Sc.,M.Phil.,(Ph.D)
Associate Professor & Head
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

Dr. A. Panneerselvam M.Sc.,M.Phil.,Ph.D.,
Associate Professor
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

Jaitech Publications

© All rights reserved by the publisher

First Edition: January 2016

This book or part thereof should not be reproduced in any form without the written permission of the authors.

ISBN : 978-93-80624-94-5

Price ₹ 420/-

For copies please contact:

JAITECH PUBLICATIONS
Plot No.14, Lakshmi Kanthammal Ist Street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.skhpl.com

Typesetting at: **Aksharaa Muthra Aalayam**, Chennai - 18, Ph: 2436 4303

CONTENTS

1. CONDUCTING MATERIALS		**1.1 – 1.51**
1.1	Introduction	1.1
1.2	Conductors	1.1
1.3	Electron Theory of Metals	1.2
1.4	Classical Free Electron Theory of Metals	1.3
1.5	Quantum Concepts	1.18
1.6	Fermi Distribution Function	1.19
1.7	Density of States	1.22
	Formulas	1.28
	Solved Problems	1.29
	Anna University Part - B Questions	1.49
2. SEMICONDUCTING MATERIALS		**2.1 – 2.58**
2.1	Introduction	2.1
2.2	Classification of Semiconductors	2.2
2.3	Intrinsic Semiconductor	2.3
2.4	Extrinsic Semiconductor (or) Impure Semiconductor	2.16
2.5	Hall Effect	2.32
	Formulas	2.40
	Solved Problems	2.40
	Anna University Part - B Questions	2.55
3. MAGNETIC MATERIALS		**3.1 – 3.43**
3.1	Introduction	3.1
3.2	Basic Definitions	3.2
3.3	Orgin of Magnetic Moment - Bohr Magneton	3.5
3.4	Classification of Magnetic Materials	3.6
3.5	Domain Theory of Ferromagnetism	3.13
3.6	Hysteresis	3.18
3.7	Soft and Hard Magnetic Materials	3.21
3.8	Energy Product	3.25

3.9 Ferrites [Ferrimagnetic Materials] 3.25
3.10 Magnetoresistance (MR) 3.31
3.11 Giant Magnetoresistance(GMR) 3.31
Formulas 3.36
Solved Problems 3.36
Anna University Part - B Questions 3.42

4. DIELECTRIC MATERIALS 4.1 – 4.42

4.1 Properties of Dielectrics 4.1
4.2 Fundamental Definitions in Dielectrics 4.2
4.3 Different Types of Polarization 4.5
4.4 Frequency and Temperature Dependence of Polarization 4.13
4.5 Internal Field (or) Local Field 4.16
4.6 Clausius – Mosotti Relation Equation 4.20
4.7 Dielectric Loss 4.22
4.8 Dielectric Breakdown 4.23
4.9 Requirement of Good Dielectric Materials 4.26
4.10 Uses of Dielectric Materials 4.27
4.11 Ferro Electricity 4.28
Formulas 4.30
Solved Problems 4.31
Anna University Part - B Questions 4.40

5. OPTICAL PROPERTIES OF MATERIALS 5.1 - 5.36

5.1 Introduction 5.1
5.2 Optical Materials 5.1
5.3 Classification of Optical Materials 5.2
5.4 Absorption in Metals, Insulators and Semiconductors 5.2
5.5 Display Devices 5.5
5.6 Organic Light Emitting Diodes (OLEDs) 5.10
5.7 Polymer Light Emitting Diodes 5.13
5.8 Plasma Display Devices 5.16

5.9	Liquid Crystal Displays (LCD)	5.19
5.10	Comparison Between LCD and LED	5.25
5.11	Optical Data Storage Technologies	5.26
	Anna University Part - B Questions	5.36
6.	**MATERIALS CHARACTERISATION**	**6.1 - 6.41**
6.1	Introduction	6.1
6.2	Thermal Analysis Techniques	6.1
6.3	Some of the terms which are related with microscope	6.13
6.4	Electron Microscope	6.14
6.5	Types of Electron Microscope	6.18
6.6	Atomic Force Microscope	6.27
6.7	Scanning Tunneling Microscope	6.32
6.8	Electrostatic Force Mode (EFM)	6.38
6.9	Magnetic Force Mode (MFM)	6.40
	Anna University Part - B Questions	6.41
	Two Marks Questions and Answers	A1-F6
	Model Question Paper	1-4

Marketed by

Jaitech Publications

No: 14, Lakshmikanthammal 1st Street, Rajiv Nagar,
Vanagaram, Chennai - 600 077.
Phone : 2649 6142 / 43 / 44 Telefax +91 44 2649 6140

ISBN 978-93-80624-94-5

Physics Laboratory I & II

For I & II Semester B.E / B.Tech Students
(Common to All Branches)

Jaitech Publications

S. VADIVEL
Dr. A. PANNEERSELVAM

PHYSICS LABORATORY I & II

For I & II Semester B.E / B.Tech Students
(Common to all Branches)

S. Vadivel M.Sc., M.Phil., (Ph.D)
Associate Professor & Head
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

Dr. A. Panneerselvam M.Sc., M.Phil., Ph.D.,
Associate Professor
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

JAITECH PUBLICATIONS

Copy right © Reserved

First Edition August 2015

This book or any part thereof may not be reproduced in any form without the written permission of the author.

Price: Rs. 160/-

ISBN: 978-93-85374-21-0

Published by:

VISHNU PRINTS MEDIA
A3-F1, 11th Street,
Eri Scheme, Mogappair, Chennai-600 037
e-mail: vpmgroups@gmail.com
phone: 044-26496164 Cell: 9566203440

Marketing by:

JAITECH PUBLICATIONS
Plot No. 14, Lakshmi Kanthammal I st Street
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044-2649 6142 / 143 / 144.
Telefax: 044-26496140
e-mail: skhengg1999@gmail.com
www.srikrishnagroup.biz

Laser Typeset:
Aksharaa Muthra Aalayam, Teynampet, Chennai. Ph: 2436 4303, 2435 0636

CONTENT

Sl. No.	Name of the Experiment	Page No.
	Measuring Instruments	
A	Vernier caliper	1
B	Screw gauge	5
C	Traveling microscope	9
D	Spectrometer	13
	PHYSICS LABORATORY -I	
1.	Determination of Young's modulus of the material – Non- uniform bending method	17
2.	(a) Determination of acceptance angle in an optical fibre	27
	(b) Determination of particle size using diode laser	35
	(c) Determination of laser parameters- Wavelength and angle of divergence using laser	43
3.	Determination of coefficient of thermal conductivity - Lee's disc method	51
4.	Determination of wavelength of mercury spectrum – Grating	61
5.	Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer	71
	PHYSICS LABORATORY-II	
6.	Determination of Young's modulus of the material – Uniform bending method	81
7.	Determination of moment of inertia of disc and rigidity modulus of a Wire -Torsional pendulum	89
8.	Determination of viscosity of a liquid by Poiseuille's method	97
9.	Determination of band gap of a Semiconductor	105
10.	Determination of thickness of a fibre - Air wedge method	111
11	Determination of dispersive power of a prism using spectrometer	119

	SI Units	126
	Physical Constant	129
	List of Formula	130
	PHYSICAL DATA	
	Density of Solids and Liquids	132
	Elastic Constants	133
	Thermal Conductivity	135
	Refractive Index	
	Wavelength of Spectral Lines	136
	Specific Resistance	
	Temperature Coefficient of Resistance	

Marketed by

Jaitech Publications

No: 14, Lakshmikanthammal 1st Street, Rajiv Nagar,
Vanagaram, Chennai - 600 077.
Phone : 2649 6142 / 43 / 44 Telefax +91 44 2649 6140

ISBN 978-93-85374-21-0

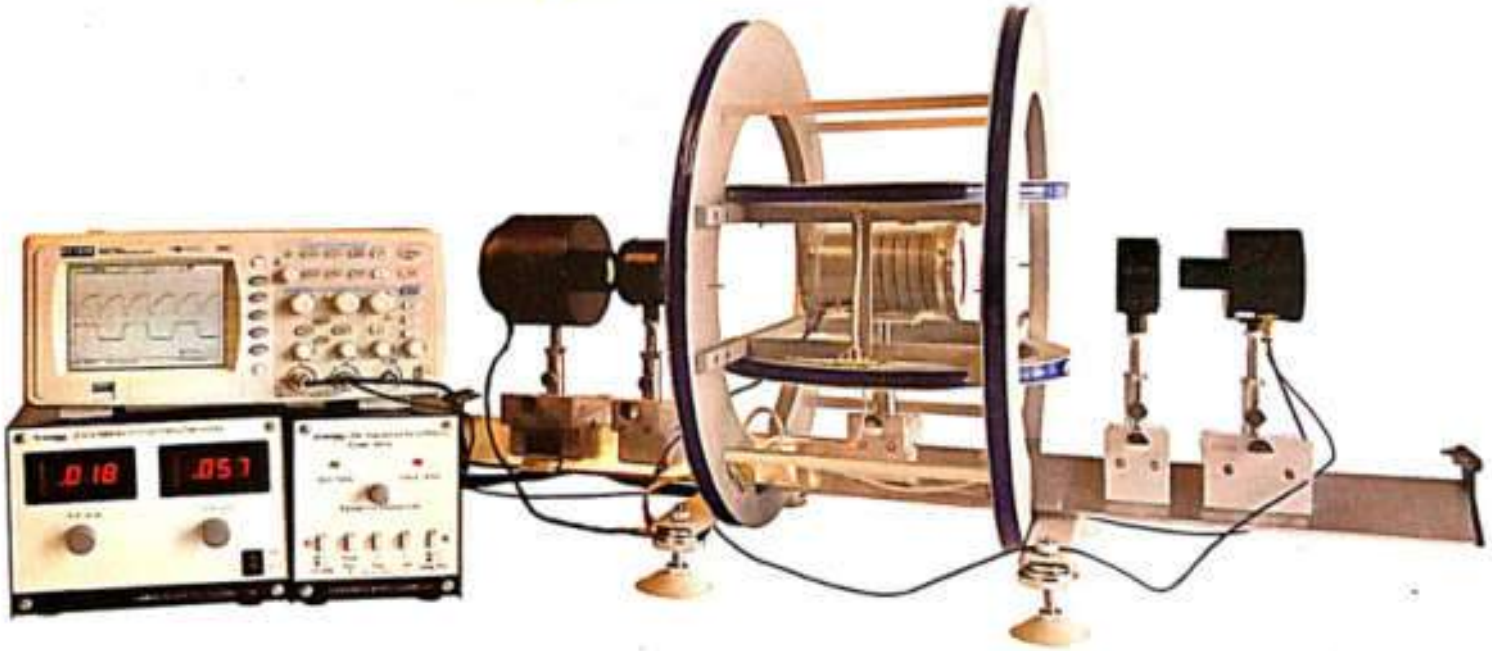
New Edition

PHYSICS LABORATORY MANUAL

As per the **Paavai Engineering College** (Autonomous) Syllabus

For I & II Semester B.E / B.Tech Students

Regulation 2019



Dr. S. Vadivel

SRI KRISHNA TRADERS

PHYSICS LABORATORY MANUAL

As per the Paavai Engineering College (Autonomous) syllabus

For I & II Semester B.E / B.Tech Students
(Regulation 2019)

Dr. S. Vadivel M.Sc., M.Phil., Ph.D.
Professor & Head
Department of Physics
Paavai Engineering College (Autonomous)
Pachal, Namakkal - 637 018

SRI KRISHNA TRADERS

Copy right © Reserved

First Edition August 2019

This book or any part thereof may not be reproduced in any form without the written permission of the author.

Price: Rs. 190/-

ISBN: 978-93-87300-03-3

Published by:

VISHNU PRINTS MEDIA
A3-F1, 11th Street,
Eri Scheme, Mogappair, Chennai-600 037
e-mail: vpmgroups@gmail.com
phone: 044-26496164 Cell: 9566203440

Marketing by:

Sri Krishna Traders
115/4A, 2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi,
Chennai - 600077
Phone: 044 26496140/142/143
Cell: 9566203440 / 9444542032 / 9884975682
email: skhengg1999@gmail.com
www.assendobookbazaar.com

Laser Typeset:
Aksharaa Muthra Aalayam, Teynampet, Chennai. Ph: 2436 4303, 2435 0636

CONTENT

Sl. No.	Name of the Experiment	Page No.
	Measuring Instruments	
A	Vernier caliper	1
B	Screw gauge	5
C	Traveling microscope	9
D	Spectrometer	13
	PHYSICS LABORATORY - I	
1.	Determination of Young's modulus by non- uniform bending method.	17
2.	Determination of rigidity modulus - Torsion pendulum.	27
3.	Determination of coefficient of viscosity of a liquid - Poiseuille's method.	35
4.	Determination of velocity of sound and compressibility of liquid - Ultrasonic interferometer.	43
5.	Determination of wavelength and particle size using Laser.	51
6.	Determination of acceptance angle in an optical fiber.	59
7.	Determination of lattice parameters using powder XRD.	67
	PHYSICS LABORATORY - II	
1.	Determination of Hall coefficient of semiconductor material.	81
2.	Determination of band gap of a semiconductor.	97
3.	Determination of thermal conductivity of a bad conductor - Lee's Disc method.	103
4.	Determination of dielectric constant of the material at different temperatures.	113
5.	Determination of hysteresis losses in a Ferromagnetic material.	123
6.	To study V-I characteristic of MOSFET.	139
7.	To study of switching behavior of CMOSFET.	149

8.	To study the V-I characteristics of LDR.	157
9.	To study the characteristics of LED under forward and reverse bias.	163
10.	To Study the V-I characteristics of solar cell.	173
11.	To study AFM image analysis of nanostructured material.	183
12.	To analyze surface morphological futures of the given sample using SEM image.	197
13.	To synthesize nanomaterials using Co-precipitation method	207
	SI Units	213
	Physical Constant	216
	List of Formula	217
	PHYSICAL DATA	
	Density of Solids and Liquids	219
	Elastic Constants	220
	Thermal Conductivity	222
	Refractive Index	
	Wavelength of Spectral Lines	223
	Specific Resistance	
	Temperature Coefficient of Resistance	

For online purchase

Assendo Book Bazaar .com

www.assendobookbazaar.com

Marketed by

SRI KRISHNA TRADERS

115/4A,-2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi, Chennai - 600 077.
Ph: 044 26496 140 | 142 | 143
Cell: 9566203440 | 9444542032 | 9884975682
skhengg1999@gmail.com | www.assendobookbazaar.com

ISBN 978-93-87300-03-3

Simulators for Wireless Sensor Networks

Dr. S.Anandamurugan
R.Deenadhayalan

Dr. S. ANANDAMURUGAN obtained his Bachelor's degree in EEE from "Maharaja Engineering College - Avinashi" under Bharathiyar University and Masters Degree in CSE from "Arulmigu Kalasalingam College of Engineering – Krishnan Koil" under Madurai Kamaraj University. He completed his Ph.D in WSN from Anna University, Chennai.

R.Deenadhayalan obtained his Bachelor's degree in Computer Science and Engineering from "Maharaja Engineering College - Avinashi" under Anna University and Master Degree in Computer Science and Engineering from "Anna University".

This book gives a detailed introduction to simulation concepts. It is very useful for those who are new to concepts. The aim of this book is to give maximum guidance to the students, faculty, research scholars and people working in the area of wireless sensor networks.

Price : ₹ 300.00

DIGITAL INTELLIGENCE

Mr. R. Deenadhayalan
Dr. S. Anandamurugan

GBS
PUBLISHERS & DISTRIBUTORS (I)

Price:Within India: Rs. 500
Outside India: US$ 25

GBS
PUBLISHERS & DISTRIBUTORS (I)

4866/24, Ground Floor, Sheeltara House, Ansari Road,
Darya Ganj, New Delhi-110002 (India).
Tel.: +91-11-23264904, +91-9311883099
E-mail: info@gbspublisher.com
Website: www.gbspublisher.com

Introduction to Computing

Dr. S. Anandamurugan
Mr. R. Deenadhayalan

RIP Research India Publications

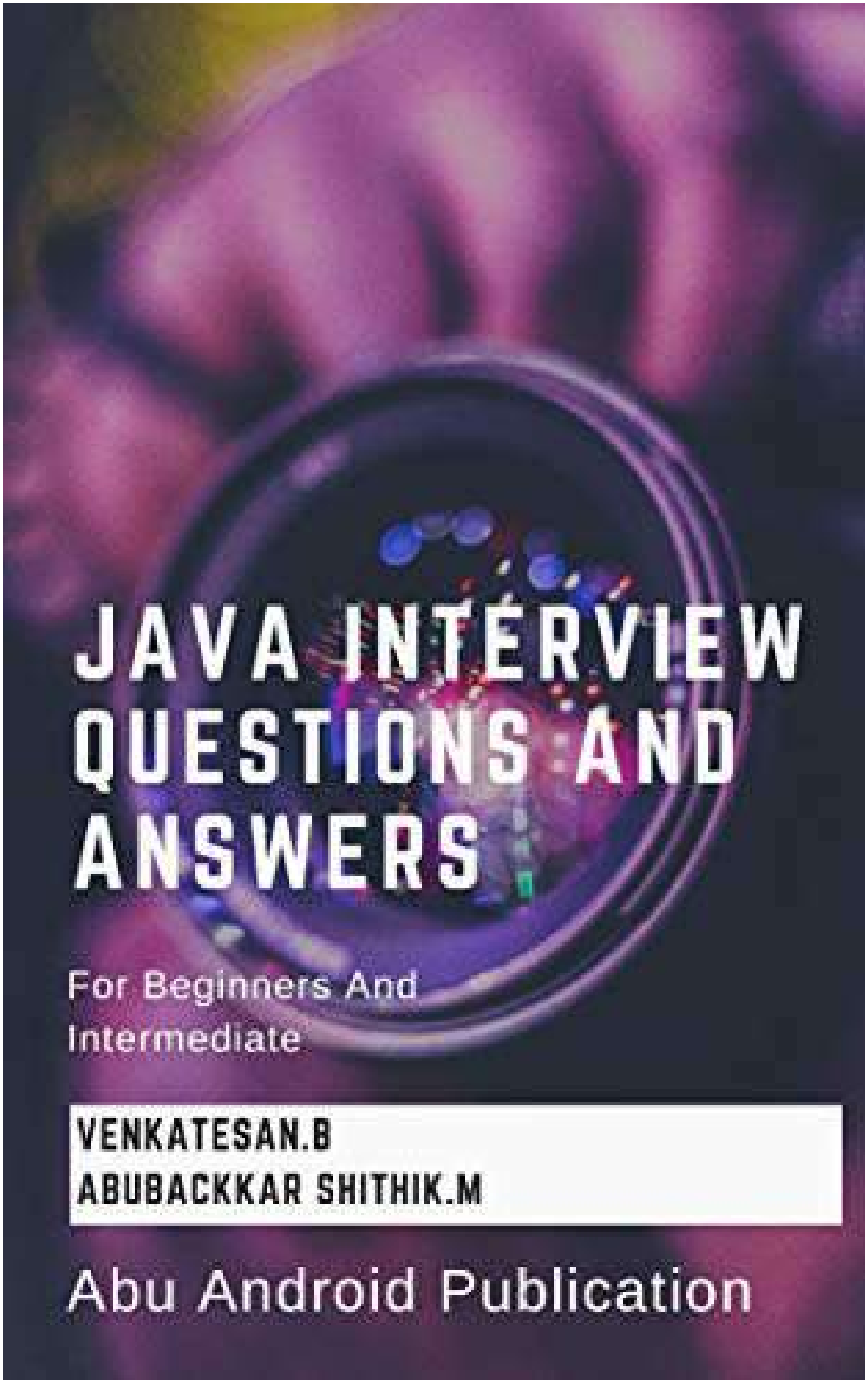
AUTHORS PROFILE

Dr. S. ANANDAMURUGAN obtained his Bachelor's degree in Electrical and Electronics Engineering from "Maharaja Engineering College - Avinashi" under Bharathiyar University and Masters Degree in Computer Science and Engineering from "Arulmigu Kalasalingam College of Engineering – Krishnan Koil" under Madurai Kamaraj University. He completed his Ph.D in Wireless Sensor Networks from Anna University, Chennai. He has 15 years of teaching experience. Currently he is working as Assistant Professor (Selection Grade) in the department of Information Technology in Kongu Engineering College, Perundurai. He is a life member of ISTE, CSI & ACEEE. He has received "**Best Faculty**" award for the year 2007-08. He has authored more than 70 books. He has Published 20 papers in International and National Journals and 10 Papers in International and National Conferences. His area of interest includes Sensor Networks and Green Computing. He is an Editorial Board Member of the International Journal of Computing Academic Research (IJCAR). He has organized ICSIR sponsored seminar for the benefit of faculty members and students. He has attended about 40 Seminars, FDP's, and Workshops organized by various Engineering colleges.

R.Deenadhayalan obtained his Bachelor's degree in Computer Science and Engineering from "Maharaja Engineering College - Avinashi" under Anna University and Master Degree in Computer Science and Engineering from "Anna University". He has 5 years of teaching experience and 2 years of industry Experience. Currently he is working as an Assistant Professor in the department of Information Technology in Kongu Engineering College, Perundurai. He is a life member of IAENG, andCSI. He has published many papers in International and National Journals and National Conferences. His area of interest includes Sensor Networks, Internet of Thing (IoT) and Internet Programming. He has attended Seminars, FDP's, and Workshops organized by various Engineering colleges.

ISBN: 978-93-84443-30-6

RIP Research India Publications
Head Office: B-2/84, Ground Floor,
Rohini Sector-16, Delhi-110089, INDIA
Fax No.: +91-11-27297815
Email: ripublication@vsnl.net
Website: www.ripublication.com


JAVA INTERVIEW QUESTIONS AND ANSWERS
For Beginners And Intermediate
VENKATESAN.B
ABUBACKKAR SHITHIK.M
Abu Android Publication

FUNDAMENTALS OF DATA STRUCTURE

SEARCH
Algorithm to Search

SORT
Algorithm to Sort

INSERT
Algorithm to Insert

UPDATE
Algorithm to Update

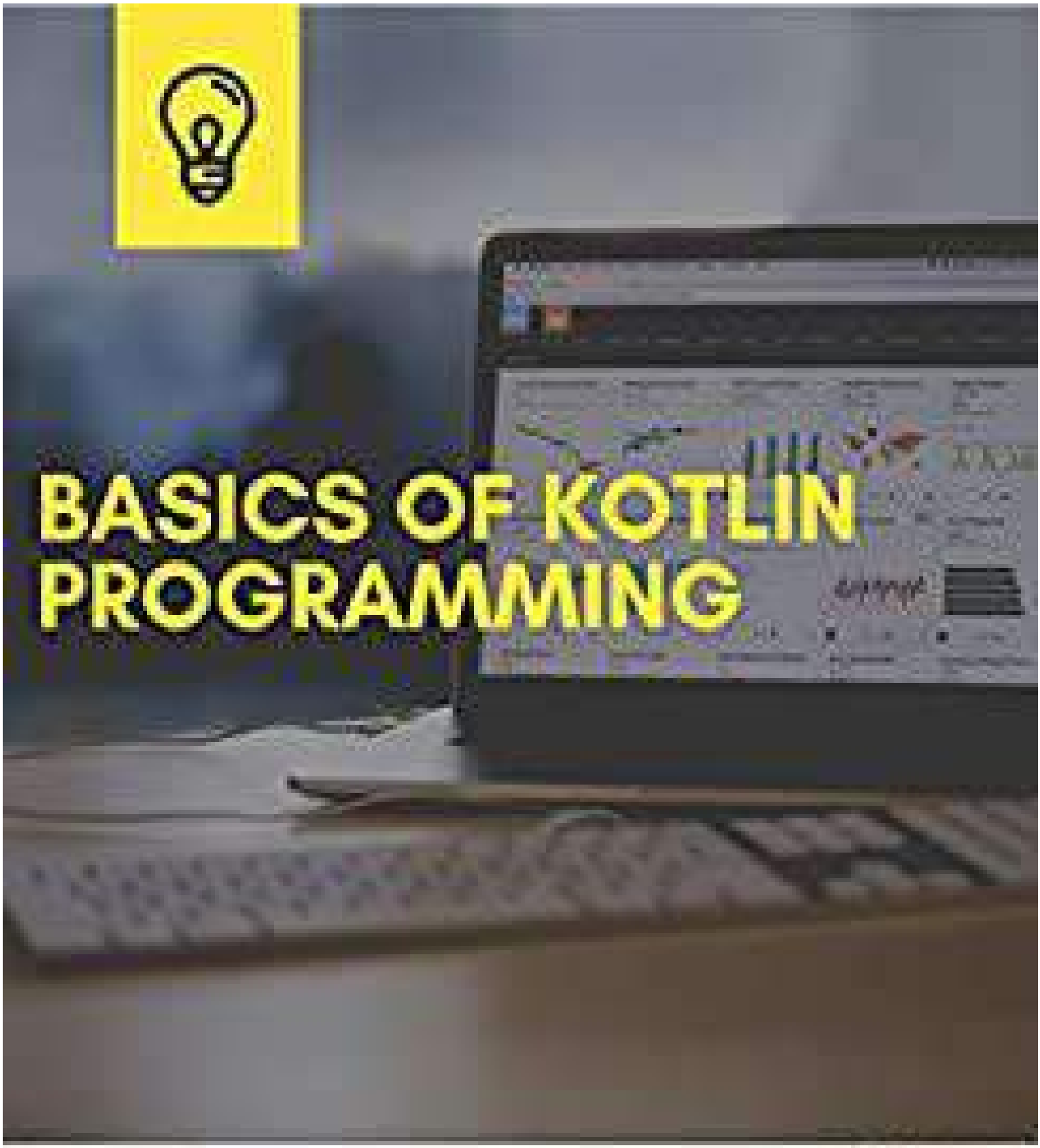
WHO WE ARE?

Abubackkar shithik
Android Developer

WHO WE ARE?

Venkatesan.B
Associate Professor

Abu Android Publication



VENKATESAN.B
ABUBACKKAR SHITHIK.M

ABU ANDROID PUBLICATION

Bat Algorithm Optimized Controller for Automatic Generation Control of Interconnected Thermal Power System

Authors Jagatheesan Kaliannan, Anand Baskaran, Nilanjan Dey, Amira S. Ashour, Rajesh Kumar

Pages 276 - 286

DOI 10.3233/978-1-61499-939-3-276

Series Frontiers in Artificial Intelligence and Applications

Ebook Volume 314: Information Technology and Intelligent Transportation Systems

Abstract

The power balance is considered as most remarkable issue in power generation system. In this proposed work thermal power systems are connected through tie-line. Thermal power system is designed by considering reheat turbine with single stage, governor, and speed regulator unit. Proportional-Integral-Derivative (PID) controller is implemented to regulate the system operation. In this proposed work, the automatic generation control of three-area interconnected reheat thermal power generating system designed and discussed. The PID controller gain values are tuned with the help of more powerful evolutionary Bat Algorithm (BA) procedure. The proposed Bat algorithm tuned controller response was examined by comparing its performance with other optimization technique, namely Genetic Algorithm (GA) and Particle Swam Optimization (PSO) technique tuned controller response. Additionally, different cost functions-based bat algorithm optimized controller responses are presented and compared. The time domain specification parameters are considered for verifying the better-cost function for designing of controller. The simulated responses evident that proposed bat algorithm tuned controller output yield superior performance over GA & PSO tuned controller. Integral Time Square Error (ITSE) cost function-based BA tuned controller give better controlled response during sudden load demand condition in interconnected power system.

$35.00 / €27.50 / £22.00

Add PDF to cart

IOS Press Copyright 2021

Disclaimer Terms of use Privacy Policy Contact FAQ

FOLLOW US ON TWITTER

This book deals with the analysis, modeling and control system for permanent magnet synchronous generator based wind turbine connected to the grid. A wind energy conversion using DC-DC Buck- Boost Converter for permanent magnet synchronous generator based variable speed wind energy conversion system has been integrated with grid using five-level diode clamped multilevel inverter. In this work the instantaneous values of input side current and voltage of DC-DC buck-boost converter are utilized for implementing the PID controller.

C.Gowrishankar received his PG degree in Power Systems engineering from Anna University, Chennai, in 2014. Currently, he is an Assistant Professor at Paavai Engineering College, Namakkal, Tamilnadu. His interests are in Renewable Energy and Restructured Power Systems.

978-3-659-49725-4

Gowrishankar Chandran

Grid Integration of Wind Energy Conversion System

LAP LAMBERT Academic Publishing

Gowrishankar Chandran

Grid Integration of Wind Energy Conversion System

Gowrishankar Chandran

Grid Integration of Wind Energy Conversion System

LAP LAMBERT Academic Publishing

Impressum / Imprint
Bibliografische Information der Deutschen Nationalbibliothek: Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.d-nb.de abrufbar.
Alle in diesem Buch genannten Marken und Produktnamen unterliegen warenzeichen-, marken- oder patentrechtlichem Schutz bzw. sind Warenzeichen oder eingetragene Warenzeichen der jeweiligen Inhaber. Die Wiedergabe von Marken, Produktnamen, Gebrauchsnamen, Handelsnamen, Warenbezeichnungen u.s.w. in diesem Werk berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, dass solche Namen im Sinne der Warenzeichen- und Markenschutzgesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürften.

Bibliographic information published by the Deutsche Nationalbibliothek: The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de.
Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Coverbild / Cover image: www.ingimage.com

Verlag / Publisher:
LAP LAMBERT Academic Publishing
ist ein Imprint der / is a trademark of
OmniScriptum GmbH & Co. KG
Bahnhofstraße 28, 66111 Saarbrücken, Deutschland / Germany
Email: info@lap-publishing.com

Herstellung: siehe letzte Seite /
Printed at: see last page
ISBN: 978-3-659-49725-4

Copyright © 2016 OmniScriptum GmbH & Co. KG
Alle Rechte vorbehalten. / All rights reserved. Saarbrücken 2016

CRC FOCUS SERIES

Intelligent Signal Processing and Data Analysis

BIO-INSPIRED ALGORITHMS IN PID CONTROLLER OPTIMIZATION

Jagatheesan Kallannan
Anand Baskaran
Nilanjan Dey
Amira S. Ashour

CRC Press
Taylor & Francis Group

Bio-Inspired Algorithms in PID Controller Optimization

Intelligent Signal Processing and Data Analysis

Series Editor

Nilanjan Dey

Department of Information Technology
Techno India College of Technology
Kolkata, India

Proposals for the series should be sent directly to
one of the series editors above, or submitted to:
Chapman & Hall/CRC
Taylor and Francis Group
3 Park Square, Milton Park
Abingdon, OX14 4RN, UK

Bio-Inspired Algorithms in PID Controller Optimization
Jagatheesan Kaliannan, Anand Baskaran,
Nilanjan Dey and Amira S. Ashour

Bio-Inspired Algorithms in PID Controller Optimization

Jagatheesan Kaliannan
Anand Baskaran
Nilanjan Dey
Amira S. Ashour

CRC Press
Taylor & Francis Group
Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business

CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

© 2018 by Taylor & Francis Group, LLC
CRC Press is an imprint of Taylor & Francis Group, an Informa business

No claim to original U.S. Government works

Printed on acid-free paper

International Standard Book Number-13: 978-1-138-59816-4 (Hardback)

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the author and publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The authors and publishers have attempted to trace the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission to publish in this form has not been obtained. If any copyright material has not been acknowledged please write and let us know so we may rectify in any future reprint.

Except as permitted under U.S. Copyright Law, no part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

For permission to photocopy or use material electronically from this work, please access www.copyright.com (http://www.copyright.com/) or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of users. For organizations that have been granted a photocopy license by the CCC, a separate system of payment has been arranged.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Library of Congress Cataloging-in-Publication Data

Names: Kaliannan, Jagatheesan, author. | Baskaran, Anand, author. | Dey, Nilanjan, 1984- author. | Ashour, Amira, 1975- author.
Title: Bio-inspired algorithms in PID controller optimization / Jagatheesan Kaliannan, Anand Baskaran, Nilanjan Dey, and Amira S. Ashour.
Description: First edition. | Boca Raton, FL : CRC/Taylor & Francis Group, 2018. | Series: Intelligent signal processing and data analysis | "A CRC title, part of the Taylor & Francis imprint, a member of the Taylor & Francis Group, the academic division of T&F Informa plc." | Includes bibliographical references and index.
Identifiers: LCCN 2018014060| ISBN 9781138598164 (hardback : acid-free paper) | ISBN 9780429486579 (ebook)
Subjects: LCSH: Interconnected electric utility systems--Automation. | Electric power systems--Load dispatching--Mathematics. | Mathematical optimization. | Nature-inspired algorithms. | Cogeneration of electric power and heat. | PID controllers.
Classification: LCC TK1007 .K35 2018 | DDC 621.319/1--dc23
LC record available at https://lccn.loc.gov/2018014060

Visit the Taylor & Francis Web site at
http://www.taylorandfrancis.com

and the CRC Press Web site at
http://www.crcpress.com

Basic Electrical & Electronics Engineering

Dr. R. Arangasamy
Dr. B. Murali Babu

CHARULATHA PUBLICATIONS

Scanned with CamScanner

Basic Electrical & Electronics Engineering

Dr. R. Arangasamy, B.E., M.Tech., Ph.D.,
Professor & Head / ECE Dept.
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal 637 018.

Dr. B. Murali Babu, M.E., M.B.A., Ph.D.,
Professor - EEE & COE
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal 637 018.

For online purchase
www.charulathapublications.com
New No.24, Thambiah Road, West Mambalam, Chennai - 33.
Mobile : 98404 28577

Scanned with CamScanner

ACKNOWLEDGEMENT

We thank the almighty of god to give us the wonderful opportunity for writing this book.

We would like to thank our honorable Chairman **Shri.CA.N.V.Natarajan**, our respected Correspondent **Smt.N.Mangaiarkarasi**, Paavai Educational Institutions, for their constant motivation and support for our efforts.

We would like to extend our sincere thanks to our Academic Guru **Dr.K.K.Ramasamy**, Director Administration, Paavai Educational Institutions, for his guidance and support provided us in writing this book.

We express our sincere thanks to **Dr.M.Premkumar**, Principal Paavai Engineering College (Autonomous), **Dr.M.Devi**, Principal, Paavai College of Engineering and **Dr.A.S.Kandasamy**, Professor, Paavai Engineering College for their valuable support and encouragement.

We express our heartfelt thanks to our Paavai faculty members and special thanks to our friends, **Prof.M.Mohan**, **Prof.A.P.Sivasubramaniam**, and **Dr.P.Jayakumar**, of Paavai Engineering College.

Our special thanks to the publisher, Charulatha publications for their efforts in giving a shape to this book.

We also thank our family members, who made our work a success

Authors

Dr. R. Arangasamy

Dr. B. Murali Babu

Scanned with CamScanner

II SEMESTER (Regulation 2017)

CSE	IT	EEE	ECE
1. Programming in C 2. Physics for Informative Science 3. Enviromental Science 4. Basic Electrical, Electronics and Measurement Engg.	5. Information Technology Essentials **MECH.** 6. Engineering Mechanics	7. Circuit Theory 8. Basic Civil & Mech. **CIVIL** 9. Basic Electrical & Electronics Engg.	10. Basic Electrical and Instrumental Engg. 11. Circuit Analysis 12. Physics for Electronics Engg. 13. Eletronics Devices

IV SEMESTER

14. Microprocessor & Microcontroller 15. Design & Analysis of Algorithm 16. Operating System 17. Computer Networks 18. Software Engineering	19. Microprocessor & Microcontroller 20. Design & Analysis of Algorithm 21. Operating System 22. Software Engineering	23. Object Oriented Programming 24. Discrete Time Systems and Signal Processing	25. Electromagnetic Fields 26. Linear Integrated Circuits 27. Communication Theory

VI SEMESTER

28. Artificial Intelligence 29. Compiler Design 30. Mobile Computing 31. Distributed Systems 32. Digital Signal Processing **ELECTIVES** 33. Data Mining & Data Warehousing 34. Software Testing 35. C# & .Net Programming	36. Artificial Intelligence 37. Compiler Design 38. Software Architecture 39. Distributed Systems 40. Mobile Computing **ELECTIVES** 41. C# & .Net Programming 42. Soft Computing	43. Communication Engineering 44. Power System Operation & Control 45. Embedded Systems **Mechanical** 46. Principles of Management **CIVIL** 47. Professional Ethics In Engineering	48. Principles of Management 49. Computer Networks 50. Computer Architecture 51. VLSI Design **ELECTIVES** 52. Medical Electronics 53. Operating Systems

VIII SEMESTER

54. Multi – Core Architectures and Programming **ELECTIVES** 55. Human Computer Interaction 56. Social Network Analysis 57. Knowledge Management 58. Software Project Management 59. Professional Ethics in Engineering 60. Soft Computing	61. Service Oriented Architecture **ELECTIVES** 62. Professional Ethics in Engineering 63. Theory of Computation 64. Graph Theory & Applications 65. Social Network Analysis 66. Cyber Forensics 67. Human Computer Interaction 68. Knowledge Management 69. Software Project Management	70. Electrical Energy Generation Utilization and Conversation **ELECTIVES** 71. Power Electronics for Renewable Energy Systems 72. Professional Ethics in Engineering 73. VLSI Design	74. Wiresless Communication 75. Wireless Networks **ELECTIVES** 76. Adhoc Sensor & Networks 77. Professional Ethics in Engineering 78. Mulitimedia Compression & Communication 79. Cryptography & Network Security 80. Software Project Management 81. Entrepreneurship Development

CHARULATHA PUBLICATIONS

New No.24, Thambiah Road, West Mambalam, Chennai - 600 033.
Phone: 044-2474 5589, 044 - 2474 6546
Email: charulathapublication@yahoo.com / info@charulathapublications.com
FOR ONLINE PURCHASE
web: www.charulathapublications.com

ISBN-13: 978-93-86532-30-5

Scanned with CamScanner

Load Frequency Control of Hydro-Hydro System with Fuzzy Logic Controller Considering Non-linearity

K. Jagatheesan, B. Anand, Nilanjan Dey, Amira S. Ashour and Valentina E. Balas

Abstract The current work handles Automatic Generation Control (AGC) of an interconnected two area hydro-hydro system. The proposed system is integrated with conventional Proportional Integral (PI) as well as Fuzzy Logic Controller (FLC). Since, the conventional PI controller does not offer sufficient control performance. Thus, non-linearities such as the Generation Rate Constraint (GRC) and Governor Dead Band (GDB) are included in the system in order to overcome this drawback with employing Fuzzy Logic Controller (FLC) in the system. The results reported the time domain simulation that used to study the performance, when 1% step load disturbance is given in either area of the system. Furthermore, the conventional PI controller simulation results are compared to fuzzy logic controller. The simulation results depicted that the FLC achieved superior control performance.

K. Jagatheesan (✉)
Department of EEE, Mahendra Institute of Engineering & Technology, Namakkal, Tamilnadu, India
e-mail: jaga.ksr@gmail.com

B. Anand
Department of EEE, Hindusthan College of Engineering & Technology, Coimbatore, Tamilnadu, India
e-mail: b_anand_eee@yahoo.co.in

N. Dey
Department of Information Technology, Techno India College of Technology, Kolkata, India
e-mail: neelanjandey@gmail.com

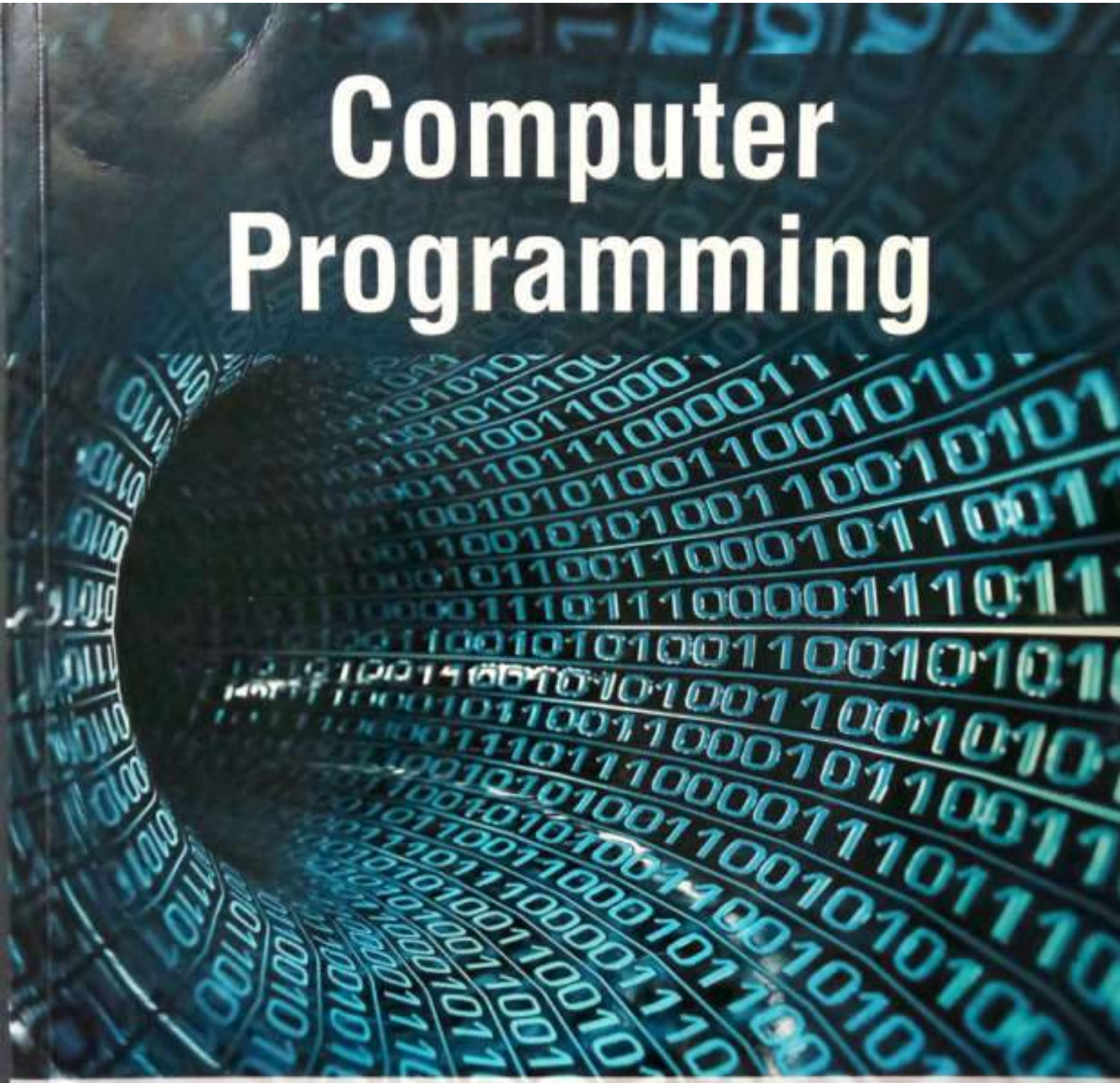
A. S. Ashour
Department of Electronics and Electrical Communications Engineering, Tanta University, Tanta, Egypt
e-mail: amirasashour@yahoo.com

V. E. Balas
Aurel Vlaicu University of Arad, Arad, Romania
e-mail: balas@drbalas.ro

© Springer International Publishing AG, part of Springer Nature 2018

L. A. Zadeh et al. (eds.), *Recent Developments and the New Direction in Soft-Computing Foundations and Applications*, Studies in Fuzziness and Soft Computing 361, https://doi.org/10.1007/978-3-319-75408-6_24

Computer Programming



E Balagurusamy

Mc Graw Hill Education

Compiled by
A. Suphalakshmi
M. Revathi
R. Santhiya

Scanned with CamScanner

Computer Programming

E. Balagurusamy

Chairman

EBG Foundation, Coimbatore

Compiled by

Dr. A. Suphalakshmi

Mrs. M. Revathi

Ms. R. Santhiya

McGraw Hill Education (India) Private Limited

CHENNAI

McGraw Hill Education Offices

Chennai New York St Louis San Francisco Auckland Bogotá Caracas
Kuala Lumpur Lisbon London Madrid Mexico City Milan Montreal
San Juan Santiago Singapore Sydney Tokyo Toronto

Scanned with CamScanner

Contents

Preface *ix*
Acknowledgements *xi*
Syllabus *xiii*

1. Introduction to Computers **1.1– 1.33**

Introduction *1.1*
Evolution of Computers *1.2*
- Generations of Computers *1.4*
- Classification of Computers *1.8*
- Basic Organization of a Computer *1.12*
- Number Systems *1.15*

Computer Software: Introduction *1.19*
- Types of Computer Software *1.20*
- System Development Programs *1.21*

History of Internet *1.23*
Understanding the World Wide Web *1.25*
Web Browsers *1.25*
Browsing the Internet *1.28*
Problem Solving *1.30*

2. Basics of 'C' Language **2.1–2.44**

History of C *2.1*
Sample Program 1: Printing a Message *2.2*
Basic Structure of C Programs *2.3*
Executing a 'C' Program *2.4*
Constants, Variables and Data Types C Tokens/ C Constants *2.4*
Constants *2.5*
Variables *2.6*

Scanned with CamScanner

Data Types 2.7
Operators and Expressions 2.9
Evaluation of Expressions 2.15
Precedence of Arithmetic Operators 2.16
Managing Input and Output Operations 2.17
Reading a Character 2.17
Writing a Character 2.19
Formatted Input 2.20
Formatted Output 2.22
Decision Making and Branching 2.23
Decision Making with if Statement 2.23
The ? : Operator 2.34
The goto Statement 2.36
Decision Making and Looping 2.36
The while Statement 2.37
The do Statement 2.38
The for Statement 2.41

3. Arrays and Strings 3.1–3.24

Introduction 3.1
One-Dimensional Arrays 3.2
Declaration of One-Dimensional Arrays 3.2
Initialization of One-Dimensional Arrays 3.4
Two-Dimensional Arrays 3.8
Initializing Two-Dimensional Arrays 3.10
Multi-Dimensional Arrays 3.12
Character Arrays and Strings 3.13
Declaring and Initializing String Variables 3.14
Reading Strings from Terminal 3.15
Writing Strings to Screen 3.17
Putting Strings Together 3.18
Comparison of Two Strings 3.18
String-Handling Functions 3.19

4. Functions and Pointers 4.1–4.27

Introduction 4.1
Elements of User-Defined Functions 4.1
Definition of Functions 4.1
Return Values and their Types 4.3
Function Calls 4.3
Function Declaration 4.5
Category of Functions 4.6
No Arguments and No Return Values 4.6
Arguments But No Return Values 4.8

Scanned with CamScanner

Arguments with Return Values *4.11*
No Arguments but Returns a Value *4.11*
Recursion *4.11*
Passing Arrays to Functions *4.12*
Pointers *4.13*
Understanding Pointers *4.14*
Accessing the Address of a Variable *4.16*
Declaring Pointer Variables *4.17*
Initialization of Pointer Variables *4.17*
Pointer Expressions/Pointer Operation *4.18*
Pointer Increments and Scale Factor *4.20*
Pointers and Character Strings *4.20*
Pointers as Function Arguments *4.22*
Dynamic Memory Allocation *4.24*
Allocating a Block of Memory: Malloc *4.24*
Allocating Multiple Blocks of Memory: Calloc *4.26*
Altering the Size of a Block: Realloc *4.26*

5. Structure, Unions and File Handling **5.1–5.20**

Introduction *5.1*
Defining a Structure *5.1*
Declaring Structure Variables *5.3*
Accessing Structure Members *5.4*
Structure Initialization *5.6*
Arrays of Structures *5.7*
Arrays within Structures *5.10*
Structures within Structures *5.11*
Unions *5.13*
Size of Structures *5.14*
Defining and Opening a File *5.16*
Random Access to Files *5.18*

Appendix: C Programs **A.1–A.50**

Scanned with CamScanner

Write to us at
info.india@mheducation.com

www.mheducation.co.in

ISBN-13: 978-93-5316-295-5
ISBN-10: 93-5316-295-5

9 789353 162955

Scanned with CamScanner

S. SURESHKUMAR
Dr. J. JANET, R. KAVIYARAJ

Mr. **S.Sureshkumar** is an **Assistant Professor** in Department of CSE at Sri Krishna College of Engineering and Technology, Coimbatore, Tamilnadu.He has completed his Undergraduate and Post graduate studies in Computer Science and Engineering in Anna University, Chennai .He has 10 years of academic experience in teaching. He has published 5 books and over 20 publications in highly cited Journals and Conferences. He is a professional body member of ISTE and IAENG.

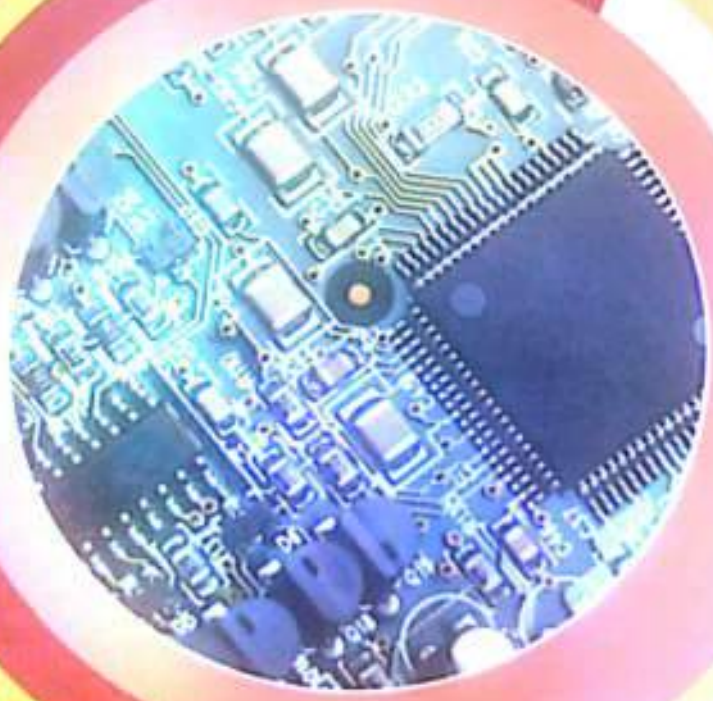
Dr. J. Janet is working as **a Principal** of Sri Krishna College of Engineering and Technology and active member of CSI. Her specialization is Knowledge Based Systems. She has produced 13 doctorates so far and presently guiding 4 Ph.D. research scholars. She has published over 100 papers in International refereed journals and has 176 Google Scholar citations with h-index 8 and i10-index 7. Dr. J. Janet has executed several research projects to the tune of ` 80 Lakhs with funding from various national agencies including DST and AICTE-TAPTEC in the areas of Artificial Intelligence and Cloud Computing. She has mentored several research projects under UGC-MRP and DST-CSRI schemes in her previous tenure. She has conducted several seminars, workshops and conferences with seminar grant from DST, TNSCST, NCSTC and DBT.

Mr.R.Kaviyaraj is an **Assistant Professor** in Department of CSE at Paavai Engineering College, Nammakal, Tamilnadu.He has completed his Undergraduate and Post graduate studies in Computer Science and Engineering in Anna University.

EDUCREATION
PUBLISHING [Delhi]

Basic Electrical & Electronics Engineering

Dr. R. Arangasamy
Dr. J. Sundararajan
Dr. V. Murali Babu



CHARULATHA PUBLICATIONS

Scanned with CamScanner

Basic Electrical & Electronics Engineering

Dr. R. Arangasamy, B.E., M.Tech., Ph.D.,
Professor & Head / ECE Dept.
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal 637 018.

Dr. J. Sundararajan, B.E., M.Tech., Ph.D.,
Principal
PAVAI COLLEGE OF TECHNOLOGY
Pachal, Namakkal 637 018.

Dr. V. Murali Babu, M.E., M.B.A., Ph.D.,
Professor - EEE & COE
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal 637 018.

For online purchase
www.charulathapublications.com
New No.24, Thambiah Road, West Mambalam, Chennai - 33.
Mobile : 98404 28577

Scanned with CamScanner

January 2018

© Charulatha Publications

Price : **Rs.380/-**

Printed by
Novena Offset Printing Co.,
Chennai.

Published by

CHARULATHA PUBLICATIONS

New No.24, Thambiah Road,
West Mambalam, Chennai - 600 033.
Phone : 24745589, 24746546
Email : charulathapublication@yahoo.com
info@charulathapublications.com
www.charulathapublications.com

Scanned with CamScanner

Electronic Devices

Dr. R. Arangasamy
Dr. J. Sundararajan

CHARULATHA PUBLICATIONS

Scanned with CamScanner

Electronic Devices

Dr. R. Arangasamy, B.E., M.Tech., Ph.D.,
Professor & Head, Department of ECE
PAAVAI ENGINEERING COLLEGE
Namakkal-637018.

Dr. J. Sundararajan, B.E., M.Tech., Ph.D.,
Principal
PAVAI COLLEGE OF TECHNOLOGY
Namakkal-637018.

For online purchase
www.charulathapublications.com

Scanned with CamScanner

November 2016

© Charulatha Publications

Price : **Rs.180/-**

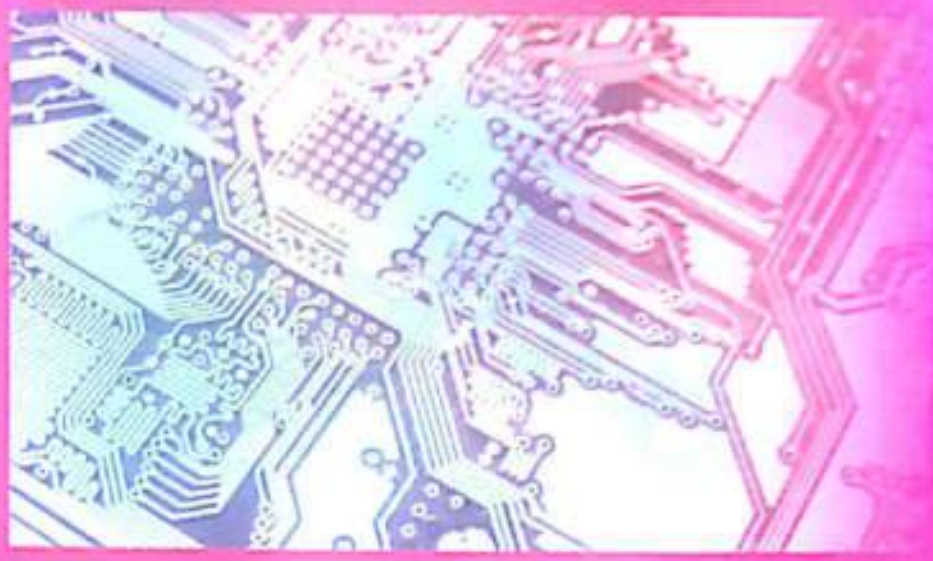
Printed by
Novena Offset Printing Co.
New No.164, Venkatarangam Street,
Ice House, Chennai - 600 005.

Published by

CHARULATHA | PUBLICATIONS

New No.24, Thambiah Road,
West Mambalam, Chennai - 600 033.
Phone : 24745589, 24746546
Email : charulathapublication@yahoo.com
info@charulathapublications.com
www.charulathapublications.com

Scanned with CamScanner



Circuit Analysis

For 2nd Semester ECE

Dr. R. Arangasamy
Dr. J. Sundararajan

Regulation 2017

CHARULATHA PUBLICATIONS

Scanned with CamScanner

Circuit Analysis

Dr. R. Arangasamy, B.E., M.Tech., Ph.D.,
Professor & Head / ECE Dept.
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal 637 018.

Dr. J. Sundararajan, B.E., M.Tech., Ph.D.,
Principal
Department of Electrical and Electronics Engineering
PAAVAI COLLEGE OF TECHNOLOGY
Pachal, Namakkal 637 018.

For online purchase
www.charulathapublications.com
New No.24, Thambiah Road, West Mambalam, Chennai - 33.
Mobile : 98404 28577

Scanned with CamScanner

January 2018

© Charulatha Publications

Price : **Rs.450/-**

Printed by
United Bind Graphics
Chennai.

Published by

CHARULATHA PUBLICATIONS

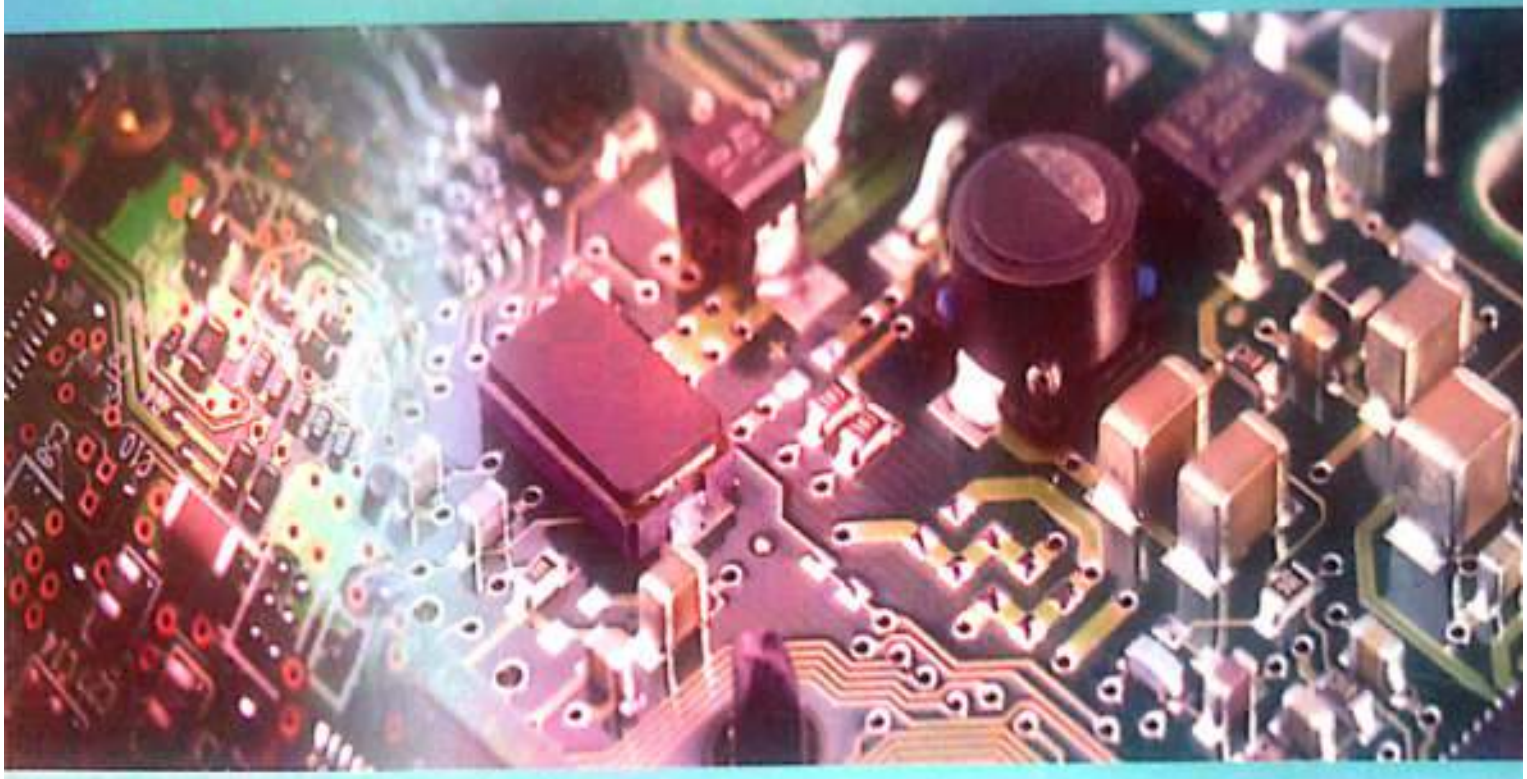
New No.24, Thambiah Road,
West Mambalam, Chennai - 600 033.
Phone : 24745589, 24746546
Email : charulathapublication@yahoo.com
info@charulathapublications.com
www.charulathapublications.com

Scanned with CamScanner

Circuit Theory

Dr. R. Arangasamy
Dr. J. Sundararajan

As per Paavai Engineering College (Autonomous) Syllabus R-2016



Circuit Theory

CHARULATHA PUBLICATIONS

Scanned with CamScanner

Circuit Theory

Dr. R. Arangasamy, B.E., M.Tech., Ph.D.,
Professor & HoD
Department of ECE
PAAVAI ENGINEERING COLLEGE (AUTONOMOUS)
Pachal, Namakkal-637018

Dr. J. Sundararajan, B.E., M.Tech., Ph.D.,
Principal
PAVAI COLLEGE OF TECHNOLOGY
Pachal, Namakkal - 637018.

For online purchase
www.charulathapublications.com

Scanned with CamScanner

January 2017

© Charulatha Publications

Price : **Rs.430/-**

Printed by
Novena Offset Printing Co.
New No.164, Venkatarangam Street,
Ice House, Chennai - 600 005.

Published by

CHARULATHA PUBLICATIONS

New No.24, Thambiah Road,
West Mambalam, Chennai - 600 033.
Phone : 24745589, 24746546
Email : charulathapublication@yahoo.com
info@charulathapublications.com
www.charulathapublications.com

Scanned with CamScanner

Revised Edition

CH19203

AGRICULTURAL CHEMISTRY

As per the **Paavai Engineering College (Autonomous)** Syllabus
For II Semester B.E Agriculture Engineering Students

Regulation 2019

With
Two Marks Q & A
&
Part B Questions

Prof. M. Mohan | Dr. G. Raja

Sri Krishna Traders

CH19203 Revised Edition

AGRICULTURAL CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus

For II Semester **Agriculture** Engineering Students

Regulation 2019

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S.,
Head, Department of science & Humanities,
Paavai Engineering College, Namakkal - 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D., M.I.S.T.E.,
Head, Department of Chemistry,
Paavai Engineering College, Namakkal - 637 018.

Sri Krishna Traders

© All rights reserved by the publisher.

First Edition : January 2016
Second Edition : January 2017
Third Edition : January 2020

This book or part thereof should not be reproduced in any form without the written permission of the authors.

ISBN: 978-93-87300-04-0

Price : 395/-

For Copies Please Contact

SRI KRISHNA TRADERS

115/4A -2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi,
Thiruverkadu Post,
Chennai - 600 077.
Phone: 044 - 2649 6140 / 6142 / 6143
Cell : 94458 43029 / 9444542032 / 9884975682
Email: skhengg1999@gmail.com

Typesetting at: ***Akshara muthra aalayam, Chennai-18***

Revised Edition 2018-2019

Engineering Chemistry-I

As per the Paavai Engineering College (Autonomous) Syllabus

(For I Semester B.E / B.Tech Students)

Regulation - 2016

Prof. M. Mohan | Dr. G. Raja

SRI KRISHNA TRADERS

Revised Edition 2018 - 2019

ENGINEERING CHEMISTRY – I

As per the Paavai Engineering College (Autonomous) Syllabus

For First Year B.E/ B.Tech Students

Regulation - 2016

Prof. M. Mohan, M.Sc., M.Phil.,M.E.,F.I.C.S,
HOD / Department of S & H
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil.,M.B.A., Ph.D, M.I.S.T.E,
First Year Academic Co-ordinator
HOD / Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

SRI KRISHNA TRADERS

© All rights reserved by the authors

First Edition - August 2015
Second Edition - August 2016
Third Edition - September 2018

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-04-4

Price Rs. 375.00

For copies Please contact

SRI KRISHNA TRADERS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Published by: Jaitech Publications

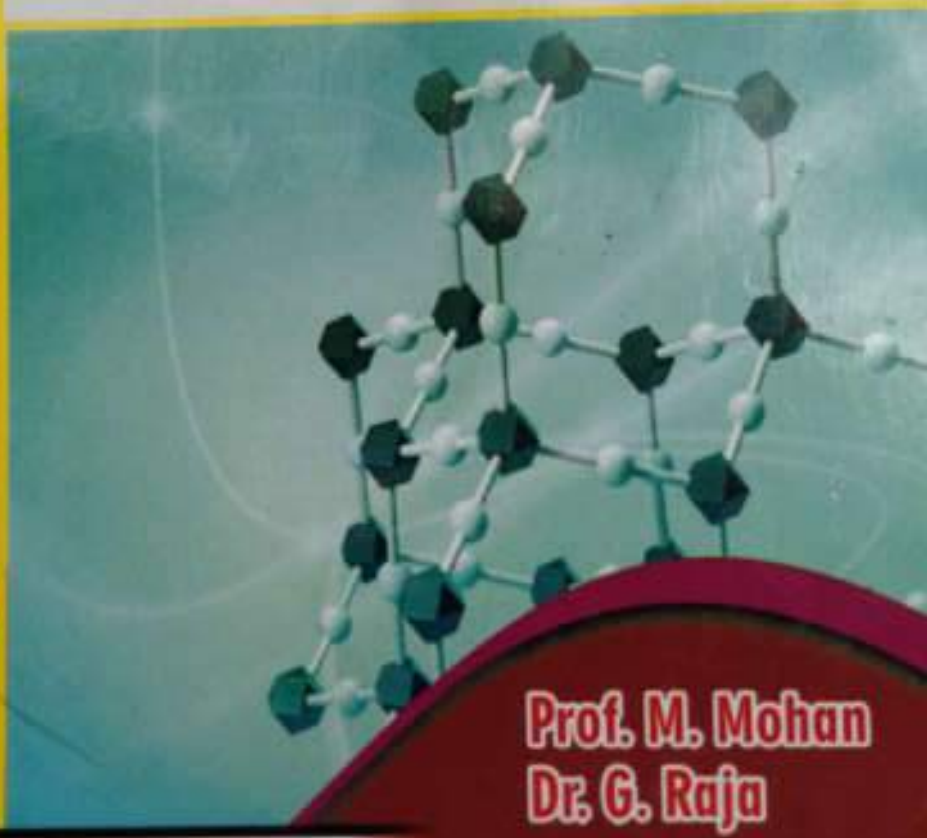
Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

Revised Edition 2016-2017

ENGINEERING CHEMISTRY - I

As per the Anna University Syllabus
(For I Semester B.E / B.Tech Students)

Regulation - 2013



With Free Annexure

Prof. M. Mohan
Dr. G. Raja

Jaitech Publications

Revised Edition 2016 - 2017

ENGINEERING CHEMISTRY – I

As per the ANNA UNIVERSITY Syllabus and Question pattern

For First Year B.E/ B.Tech Students
(I Semester)

Prof. M. Mohan, M.Sc., M.Phil.,M.E.,F.I.C.S,
HOD / Department of S & H
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil.,M.B.A., Ph.D, M.I.S.T.E,
First Year Academic Co-ordinator
HOD / Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

JAITECH PUBLICATIONS

© All rights reserved by the authors

First Edition - August 2011
Second Edition - August 2012
Third Edition - August 2014
Fourth Edition - August 2015
Fifth Edition - August 2016

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-48-8

Price Rs. 350/-

For copies Please contact

JAITECH PUBLICATIONS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

Revised Edition - 2017 - 2018

Engineering Chemistry-II

As per the Paavai Engineering College (Autonomous) Syllabus

(For II Semester B.E / B.Tech Students)

Regulation - 2016

Prof. M. Mohan | Dr. G. Raja

Jaitech Publications

CH16201 Revised Edition 2017-2018

ENGINEERING CHEMISTRY–II

As per the Paaval Engineering College (Autonomous) Syllabus

For Second Semester B.E/ B.Tech Students

Regulation - 2016

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S.
Head, Department of Science & Humanities
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D, M.I.S.T.E.
Head, Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

JAITECH PUBLICATIONS
Chennai

© All rights reserved by the authors

First Edition - January 2016

This book or part thereof should not be reproduced in any for
without the written permission of the author.

ISBN: 978-93-80624-54-9

Price Rs. 350/-

For copies Please contact

JAITECH PUBLICATIONS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

CH16201

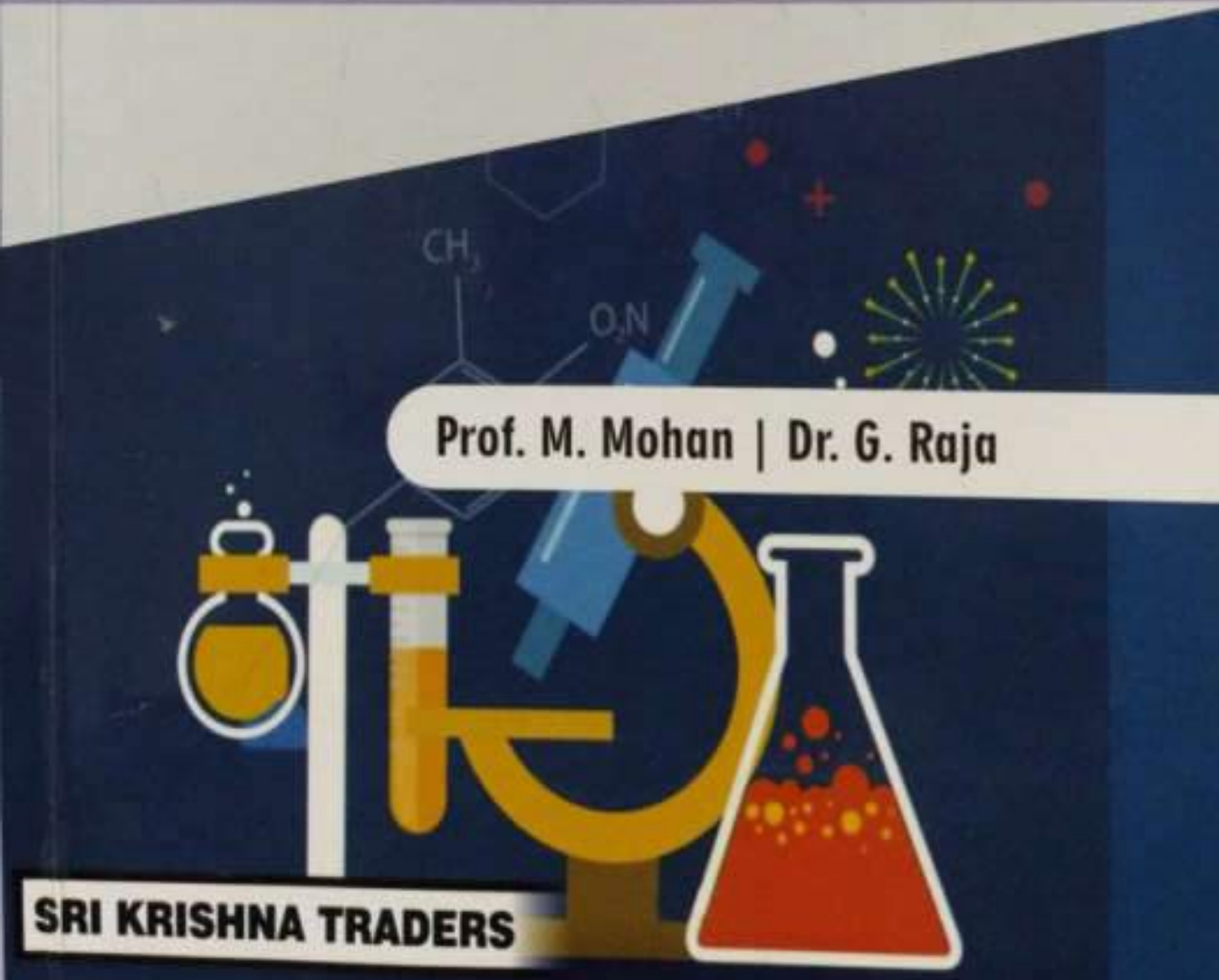
Revised Edition

ENGINEERING CHEMISTRY-II

As per the Paavai Engineering College (Autonomous) Syllabus

(For II Semester B.E / B.Tech Students)

Regulation - 2016



Prof. M. Mohan | Dr. G. Raja

SRI KRISHNA TRADERS

CH16201 Revised Edition 2018-2019

ENGINEERING CHEMISTRY–II

As per the Paavai Engineering College (Autonomous) Syllabus

For Second Semester B.E/ B.Tech Students

Regulation - 2016

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S,
Head, Department of Science & Humanities
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D, M.I.S.T.E,
Head, Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

SRI KRISHNA TRADERS
Chennai

© All rights reserved by the authors

First Edition - January 2016
Second Edition - January 2019

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-54-9

Price Rs. 350/-

For copies Please contact

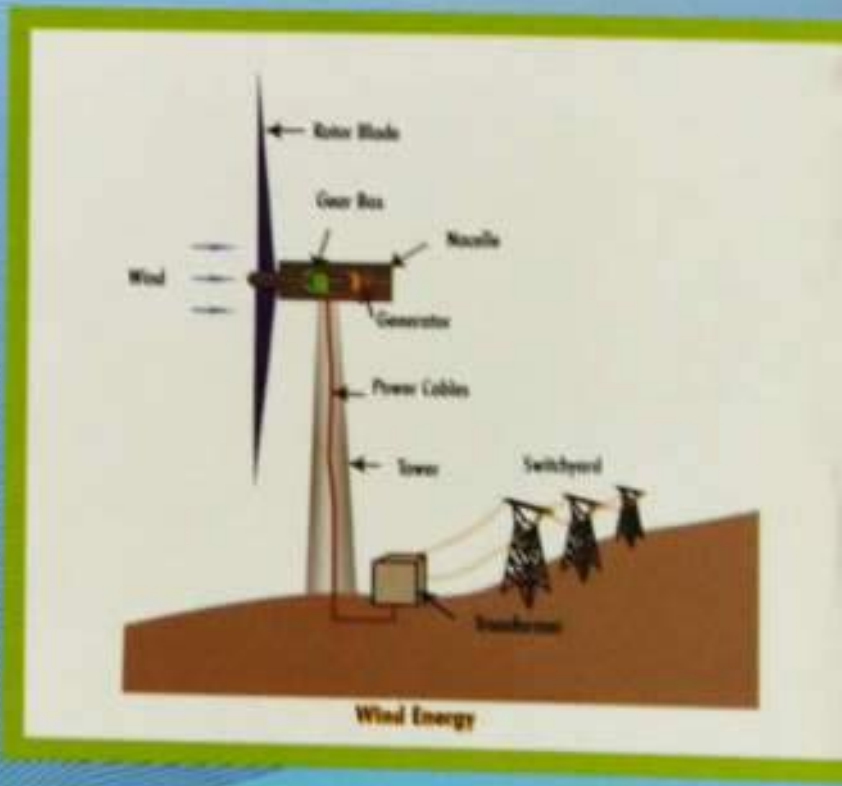
SRI KRISHNA TRADERS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Lasertypesetting by
akshayaa muthra aalayam, Chennai-18 Ph: 2436 4303

Revised Edition 2016-2017

Engineering Chemistry-II

As per the **Anna University** Syllabus
(For II Semester B.E / B.Tech Students)



Wind Energy

Prof. M. Mohan | Dr. G. Raja

Jaitech Publications

Revised Edition

ENGINEERING CHEMISTRY – II

As per the ANNA UNIVERSITY Syllabus and Question pattern

For First Year B.E/ B.Tech Students
(II Semester)

Prof. M. Mohan, M.Sc., M.Phil.,M.E.,F.I.C.S,
Head, Department of Science & Humanities
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil.,M.B.A., Ph.D, M.I.S.T.E,
Head, Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

JAITECH PUBLICATIONS

© All rights reserved by the authors

First Edition - Jan. 2012
Second Edition - Jan. 2013
Third Edition - Jan. 2014
Fourth Edition - Jan. 2015
Fifth Edition - Jan. 2016

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-61-7

Price Rs. 350/-

For copies Please contact

JAITECH PUBLICATIONS
No.49, Chellapillayar Koil Street,
Royapettah, Chennai - 600 014.
Cell: 94445 42032 / 9445767655
www.jaitechpublications.co.in

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

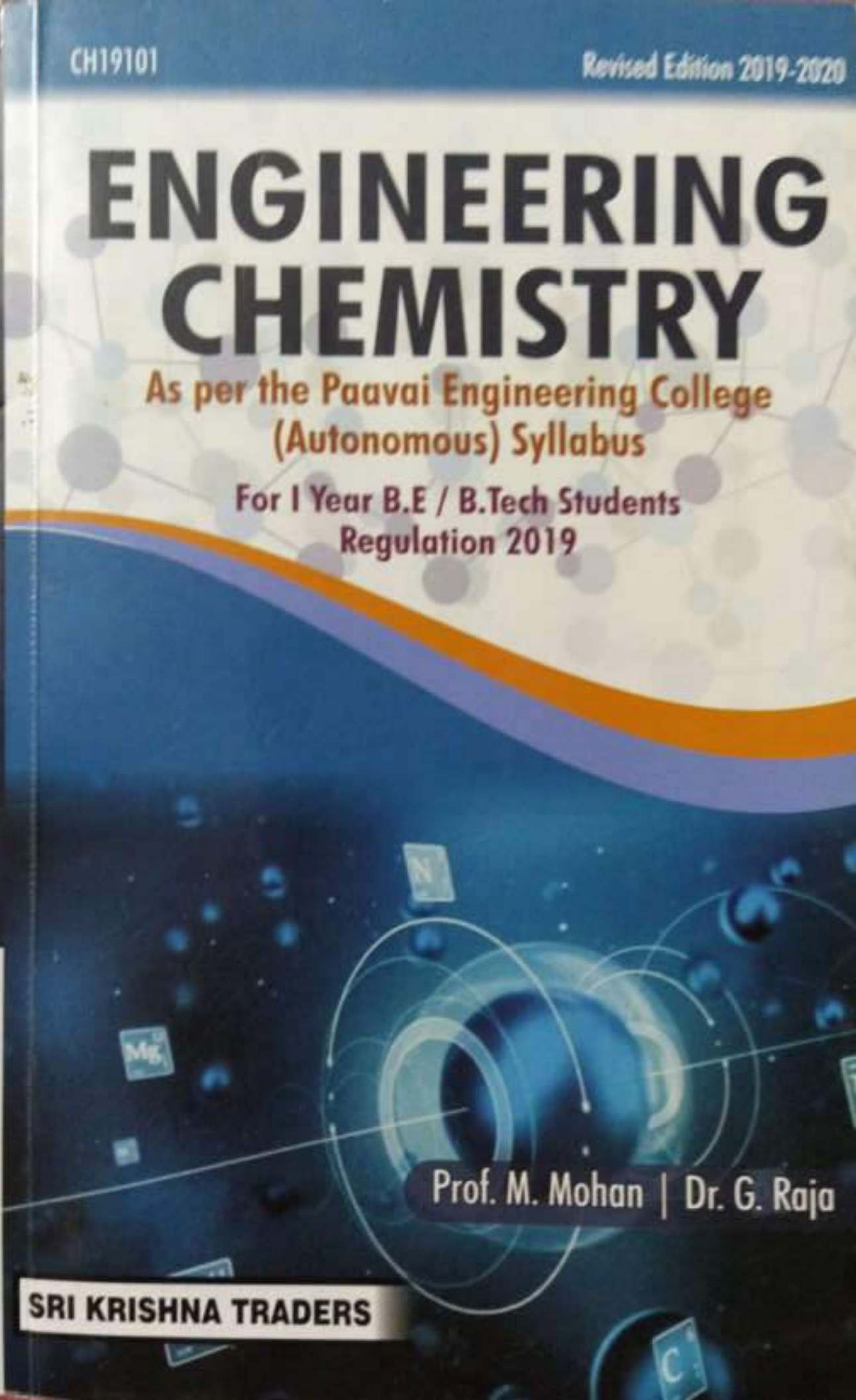
CH19101

Revised Edition 2019-2020

ENGINEERING CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus

For I Year B.E / B.Tech Students
Regulation 2019



Prof. M. Mohan | Dr. G. Raja

SRI KRISHNA TRADERS

Revised Edition 2019 - 2020

ENGINEERING CHEMISTRY – I

As per the Paavai Engineering College (Autonomous) Syllabus

For First Year B.E/ B.Tech Students

Regulation - 2019

Prof. M. Mohan, M.Sc., M.Phil.,M.E.,F.I.C.S,
HOD / Department of S & H
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil.,M.B.A., Ph.D, M.I.S.T.E,
First Year Academic Co-ordinator
HOD / Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

SRI KRISHNA TRADERS

© All rights reserved by the authors

First Edition - August 2015
Second Edition - August 2016
Third Edition - September 2018
Fourth Edition - September 2019

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-04-4

Price Rs. 390/-

For copies Please contact

SRI KRISHNA TRADERS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Published by: Jaitech Publications

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 ,Ph: 2436 4303

Revised Edition - 2017 - 2018

Engineering Chemistry-I

As per the Paavai Engineering College (Autonomous) Syllabus

(For I Semester B.E / B.Tech Students)

Regulation - 2016

Prof. M. Mohan | Dr. G. Raja

Jaitech Publications

Revised Edition 2017 - 2018

ENGINEERING CHEMISTRY – I

As per the Paavai Engineering College (Autonomous) Syllabus

For First Year B.E/ B.Tech Students

Regulation - 2016

Prof. M. Mohan, M.Sc., M.Phil.,M.E.,F.I.C.S,
HOD / Department of S & H
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil.,M.B.A., Ph.D, M.I.S.T.E,
First Year Academic Co-ordinator
HOD / Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

JAITECH PUBLICATIONS

© All rights reserved by the authors

First Edition - August 2015
Second Edition - August 2016

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-04-4

Price Rs. 320/-

For copies Please contact

JAITECH PUBLICATIONS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

Revised Edition 2017-2018

ENGINEERING CHEMISTRY - I

As per the Anna University Syllabus
(For I Semester B.E / B.Tech Students)

Regulation 2017
(CBCS Pattern)

Prof. M. Mohan
Dr. G. Raja

Jaitech Publications

Revised Edition 2017 - 2018

ENGINEERING CHEMISTRY

As per the ANNA UNIVERSITY Syllabus and Question pattern

For I Semester B.E/ B.Tech Students

(Regulation 2017)

CBCS Pattern

Prof. M. Mohan, M.Sc.,M.Phil.,M.E.,F.I.C.S,
HOD / Department of S & H
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc.,M.Phil.,M.B.A., Ph.D,M.I.S.T.E,
First Year Academic Co-ordinator
HOD / Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

JAITECH PUBLICATIONS

© All rights reserved by the authors

First Edition - August 2011
Second Edition - August 2012
Third Edition - August 2014
Fourth Edition - August 2015
Fifth Edition - August 2016
Sixth Edition - August 2017

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-80624-48-8

Price Rs. 375/-

For copies Please contact

JAITECH PUBLICATIONS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94458 43029
www.srikrishnagroup.biz

Lasertypesetting by
aksharaa muthra aalayam, Chennai-18 Ph: 2436 4303

GE8291

Revised Edition 2018-2019

ENVIRONMENTAL SCIENCE & ENGINEERING

As per the Anna University Syllabus

For II Semester, Civil, Mech, EEE, CSE & Automobile

With Part A Q & A

Prof. M. Mohan I Dr. G. Raja

SRI KRISHNA TRADERS

GE8291

ENVIRONMENTAL SCIENCE AND ENGINEERING

As per the Latest Anna University Syllabus

For II Semester, Civil, Mechanical, CSE, EEE, ICE, EIE and Production Engineering Students

Regulation - 2017

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S,
Head, Department of Science & Humanities
Paavai Engineering College, Namakkal – 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D, M.I.S.T.E,
Head, Department of Chemistry
Paavai Engineering College, Namakkal – 637 018.

SRI KRISHNA TRADERS
Chennai

© All rights reserved by the publisher

First Edition - January 2018
Second Edition - January 2019

This book or part there of should not be reproduced in any form without written permission of the author.

Price Rs. 395/-

For Copies Please contact

SRIKRISHNA TRADERS
Plot No. 14, Lakshmi Kanthammal 1st street,
Rajiv Nagar, Vanagaram
Chennai - 600 077
Phone: 044 - 2649 6142 / 6143 / 6144
Email: skhengg1999@gmail.com
Cell: 94453 43029
www.srikrishnagroup.biz

Typesetting at: aksharaa muthra aalayam, Chennai-18,
Ph: 2436 43 03.
Binding at: ***Vishnu Printech Industries***, Ph: 8608106768

www.assendobookbazaar.com

SRI KRISHNA TRADERS
Plot No.14, Lakshmi Kanthammal Ist Street,
Rajiv Nagar, Vanagaram, Chennai - 600 077.
Phone: 044-2649 6142 / 6143
Email: skhengg1999@gmail.com
Cell: 94445 42032, 95662 03440, 98411 53440
www.srikrishnagroup.biz

ISBN 978-93-87300-00-2

GE8291

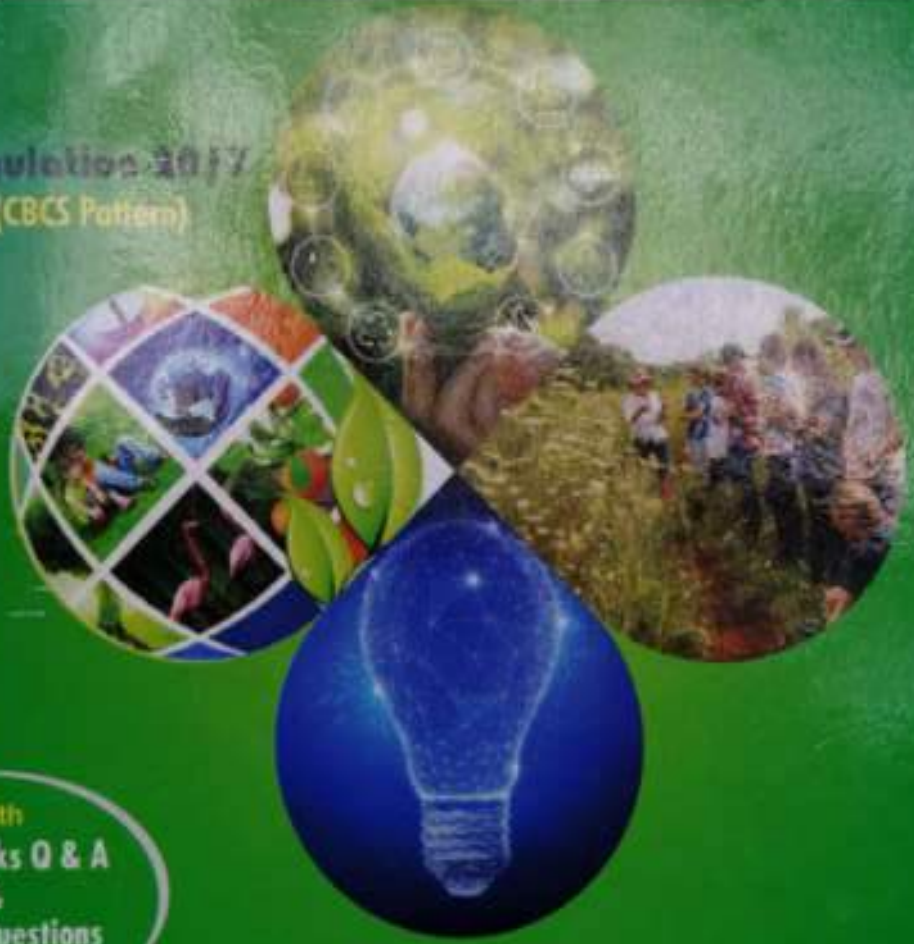
Revised Edition

ENVIRONMENTAL SCIENCE AND ENGINEERING

As per the Latest **Anna University** Syllabus

For II Semester B.E-Civil Mech / CSE / EEE / ICE / EIE & Production Engineering Students

Regulation 2017 (CBCS Pattern)



With Two Marks Q & A & Part B Questions

Prof. M. Mohan | Dr. G. Raja

Sri Krishna Traders

GE8291 **Revised Edition**

Environmental Science And Engineering

As per the Latest Anna University Syllabus

For IInd Semester **Civil, Mechanical, CSE, EEE, ICE, EIE & Production** Engineering Students

Regulation 2017
(CBCS Pattern)

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S.,
Head, Department of science & Humanities,
Paavai Engineering College, Namakkal - 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D., M.I.S.T.E.,
Head, Department of Chemistry,
Paavai Engineering College, Namakkal - 637 018.

Sri Krishna Traders

© All rights reserved by the publisher.

First Edition : January 2016
Second Edition : January 2017
Third Edition : January 2020

This book or part thereof should not be reproduced in any form without the written permission of the authors.

Price : 395/-

For Copies Please Contact

SRI KRISHNA TRADERS

115/4A -2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi,
Thiruverkadu Post,
Chennai - 600 077.
Phone: 044 - 2649 6140 / 6142 / 6143
Cell : 94458 43029 / 9444542032 / 9884975682
Email: skhengg1999@gmail.com

Typesetting at: Akshara muthra aalayam, Chennai-18

Sri Krishna Traders
115/4A,-2 Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi, Chennai - 600 077.
Ph: 044 26496 140 | 142 | 143
Cell: 9566203440 | 9444542032 | 9884975682
skhengg1999@gmail.com | www.assendobookbazaar.com

ISBN 978-93-87300-00-2

New Edition

Regulation 2019

With
Two Marks Q & A
&
Part B Questions

CH19202

INDUSTRIAL CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus
For II Semester B.E - Aero / Civil / Chem / Mech Engineering Students

Prof. M. Mohan | Dr. G. Raja

Sri Krishna Traders

First Edition

CH19202

INDUSTRIAL CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus

For II Semester AERO/CIVIL/CHEM/MECH Engineering Students

REGULATION 2019

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S.,
Head, Department of Science & Humanities,
Paavai Engineering College,
Namakkal - 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D., M.I.S.T.E.,
Head, Department of Chemistry,
Paavai Engineering College,
Namakkal - 637 018.

With
Two Marks Q & A
&
Part B Questions

Sri Krishna Traders

© *All Rights Reserved by the Publisher.*

First Edition: March 2020

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-87300-06-4

Price : 395/-

For copies please contact:

Sri Krishna Traders

115 / 4A-2, Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi
Thiruverkadu Post, Chennai – 600 077.
Ph: 044 26496 140 / 142 / 143
Cell: 9566203440 / 9444542032 / 9884975682
Email: skhengg1999@gmail.com /
www.assendobookbazaar.com

Typesetting At: **Aksharaa Muthra Aalayam**, Chennai - 18,
Ph: 2436 4303

CH19201

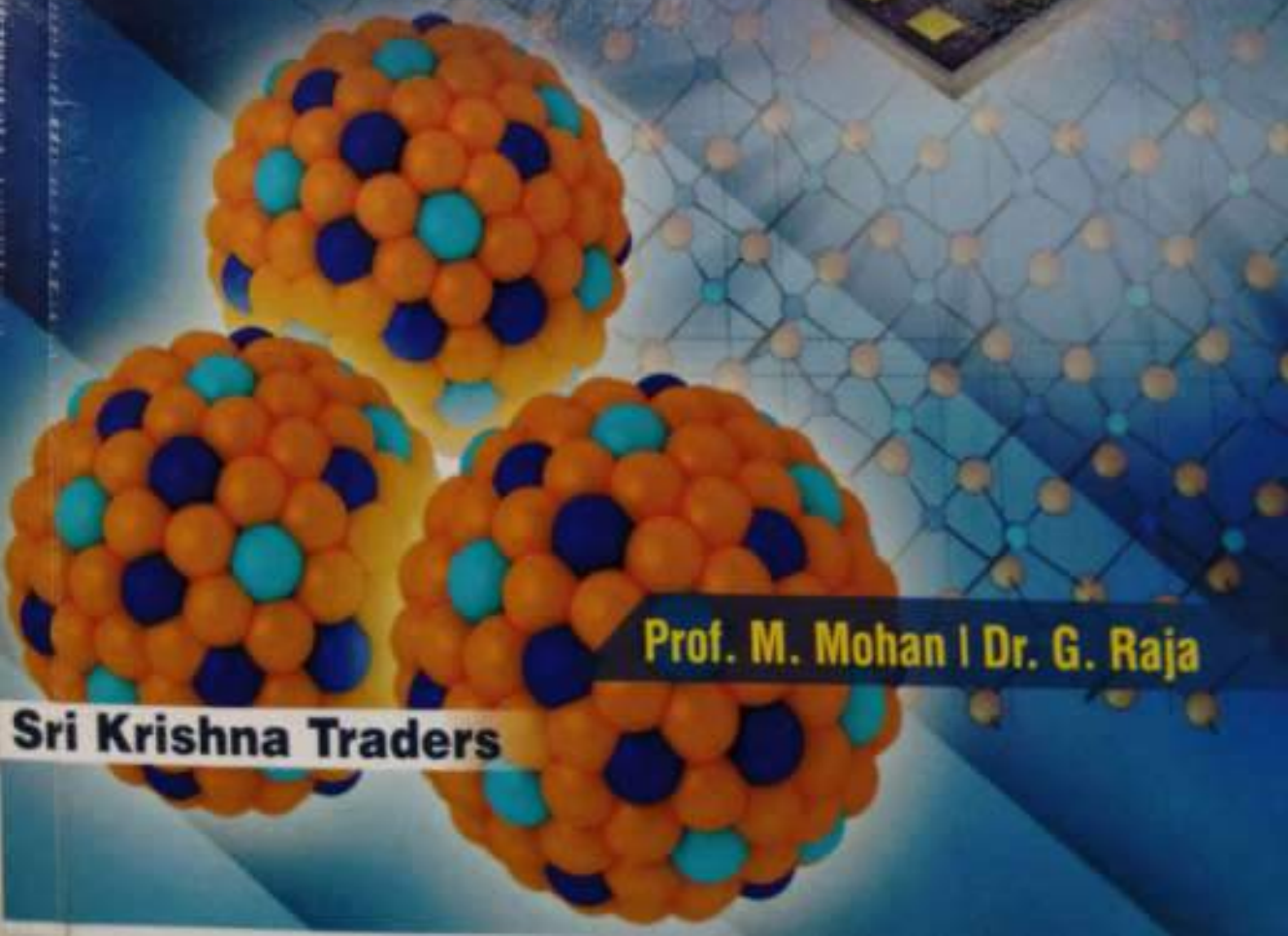
New Edition

MATERIAL CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus
For II Semester B.E - ECE / EEE / CSE / IT / ME / MCT Engineering Students

Regulation 2019

With
Two Marks Q & A
&
Part B Questions



Prof. M. Mohan I Dr. G. Raja

Sri Krishna Traders

First Edition

CH19201

MATERIAL CHEMISTRY

As per the Paavai Engineering College (Autonomous) Syllabus

For II Semester ECE/EEE/CSE/IT/ME/MCT Engineering Students

REGULATION 2019

Prof. M. Mohan, M.Sc., M.Phil., M.E., F.I.C.S.,
Head, Department of Science & Humanities,
Paavai Engineering College,
Namakkal - 637 018.

Dr. G. Raja, M.Sc., M.Phil., M.B.A., Ph.D., M.I.S.T.E.,
Head, Department of Chemistry,
Paavai Engineering College,
Namakkal - 637 018.

With
Two Marks Q & A
&
Part B Questions

Sri Krishna Traders

© *All Rights Reserved by the Publisher.*

First Edition: March 2020

This book or part thereof should not be reproduced in any form without the written permission of the author.

ISBN: 978-93-87300-05-7

Price : 395/-

For copies please contact:

Sri Krishna Traders

115 / 4A-2, Mahalakshmi Nagar Extn,
Numbal Village, Velappanchavadi
Thiruverkadu Post, Chennai – 600 077.
Ph: 044 26496 140 / 142 / 143
Cell: 9566203440 / 9444542032 / 9884975682
Email: skhengg1999@gmail.com /
www.assendobookbazaar.com

Typesetting At: **Aksharaa Muthra Aalayam**, Chennai - 18,
Ph: 2436 4303

Paavai Engineering College

(Autonomous Institution, Approved by AICTE, Affiliated to Anna University, Chennai-25)

Criterion 3.4.4: Number of papers in national/international conference-proceedings year wise during last five years

Academic Year 2019-2020

Certificate No: ICRDMSA128

CHENNAI INSTITUTE OF TECHNOLOGY

Sarathy Nagar, Kundrathur, Chennai - 600069.

ICRDMSA 2020

International Conference on Recent Developments in Material Science and Applications

KNOWLEDGE 4.0
Technical Webinar Series

Certificate

This is to certify that

Dr. Aravind. R

has presented a paper entitled

Wear Experimentation on Tantalum Carbide Based Niobium MMC

in the International Conference on Recent Developments in Material Science and Applications organised by Department of Mechanical Engineering, Chennai Institute of Technology on 25th & 26th September, 2020.

Organizing Secretary

Convenor

Principal

International Conference on Recent Developments in Material Science and Applications

BANNARI AMMAN INSTITUTE OF TECHNOLOGY

(Autonomous Institution Affiliated to Anna University, Chennai. Approved by AICTE - Accredited by NBA and Reaccredited by NAAC with A Grade)

SATHYAMANGALAM - 638 401 ERODE DISTRICT TAMIL NADU

Stay Ahead

ICMMM 2019

INTERNATIONAL CONFERENCE ON MATERIALS, MANUFACTURING AND MACHINING

Organised by

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate

This is to certify that the Author(s) Pitchia Krishnan B, Vijayan R, Gokulnath K, Vivek S, Sathyamoorthy G

Contributed a paper entitled Experimental Analysis of a Vapour Compression Refrigeration System by Using Nano Refrigerant (R290/R600a/Al2O3)

to the International Conference on Materials, Manufacturing and Machining (ICMMM-2019) held on March 8-9, 2019.

Organiser
Dr. A. Megalingam @ Murugan
Associate Professor

Co-Chairman
Dr. M. Ravikumar
Professor and Head

Patron
Dr. C. Palanisamy
Principal

Springer AIP Publishing MATEC Web of Conferences TRANSACTIONS

Scanned by CamScanner

BANNARI AMMAN INSTITUTE OF TECHNOLOGY

(Autonomous Institution Affiliated to Anna University, Chennai. Approved by AICTE - Accredited by NBA and Reaccredited by NAAC with A Grade)

SATHYAMANGALAM - 638 401 ERODE DISTRICT TAMIL NADU

ICMM 2019

INTERNATIONAL CONFERENCE ON MATERIALS, MANUFACTURING AND MACHINING

Organised by

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate

This is to certify that the Author(s) Sasi.G, Assistant Professor, Department of Aeronautical Engineering, Paavai Engineering College (Autonomous)

Contributed a paper entitled Performance Analysis of Corrugated Airfoil

to the International Conference on Materials, Manufacturing and Machining (ICMMM-2019) held on March 8-9, 2019.

Organiser
Dr. A. Megalingam @ Murugan
Associate Professor

Co-Chairman
Dr. M. Ravikumar
Professor and Head

Patron
Dr. C. Palanisamy
Principal

Springer AIP Publishing MATREE TRANSACTIONS

Scanned by CamScanner

VIMAL JYOTHI ENGINEERING COLLEGE

JYOTHI NAGAR, CHEMPERI, KANNUR, KERALA -670632
(Affiliated to APJ Abdul Kalam Technological University, Trivandrum, Kerala
Approved by AICTE, New Delhi)
(Accredited by NBA/ NAAC / ISO 9001 – 2015 certified)

CERTIFICATE OF PARTICIPATION

This is to certify that
Dr Arravind R
from
Paavai Engineering College

has presented a paper titled "Conceptual Design and Preliminary Analysis of Turbojet Engine"
in the International Conference on Technology convergence engineering energy & sustainability (ICTCEES-2019) held from 11 - 12 July 2019 at Vimal Jyothi Engineering College, Kerala

(Convenor)
Dr.S.Christopher Ezhil Singh,
Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Head of Department
Cdr. (Rtd.) Raju K Kuriakose,
Associate Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Principal
Dr.Benny Joseph,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

CERTIFICATE ID: FDPEAM-ME0000016

VIMAL JYOTHI ENGINEERING COLLEGE

JYOTHI NAGAR, CHEMPERI, KANNUR, KERALA -670632
(Affiliated to APJ Abdul Kalam Technological University, Trivandrum, Kerala)
Approved by AICTE, New Delhi)
(Accredited by NBA, NAAC, ISO 9001 – 2015 certified)

CERTIFICATE OF PARTICIPATION

This is to certify that
Ms. Vaishnavi T S
from
Paavai Engineering College

has presented a paper titled "Design and Development of Box Tail UAV Powered with Solar Panel"
in the International Conference on Technology convergence engineering energy & sustainability (ICTCEES-2019) held from 11 - 12 July 2019 at Vimal Jyothi Engineering College, Kerala

[redacted]

(Convenor)
Dr.S.Christopher Ezhil Singh,
Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Head of Department
Cdr. (Rtd.) Raju K Kuriakose,
Associate Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Principal
Dr.Benny Joseph,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

CERTIFICATE ID: FDPEAM-ME0000016

VIMAL JYOTHI ENGINEERING COLLEGE

JYOTHI NAGAR, CHEMPERI, KANNUR, KERALA -670632
(Affiliated to APJ Abdul Kalam Technological University, Trivandrum, Kerala
Approved by AICTE, New Delhi)
(Accredited by NBA/ NAAC / ISO 9001 – 2015 certified)

CERTIFICATE OF PARTICIPATION

This is to certify that
Mr. P.Karthikeyan
from
Paavai Engineering College

has presented a paper titled "Analyzing the Behaviour of Natural and Artificial Composite"
in the International Conference on Technology convergence engineering energy & sustainability (ICTCEES-2019) held from 11 - 12 July 2019 at Vimal Jyothi Engineering College, Kerala

[redacted]

(Convenor)
Dr.S.Christopher Ezhil Singh,
Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Head of Department
Cdr. (Rtd.) Raju K Keriakose,
Associate Professor,
Department of Mechanical Engineering,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632.

Principal
Dr.Benny Joseph,
Vimal Jyothi Engineering College,
Kannur, Kerala - 670632

CERTIFICATE ID: FDPEAM-ME0000016

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)

SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....SATHESWARAN . N..... of .....PAAVAI ENGINEERING COLLEGE..... has participated and presented a paper entitled .EFFECT OF ORGANIC LIQUID FERTILIZERS ON SOIL PROPERTIES AND GROWTH OF BRINJAL..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

Dr. KALAM INSTITUTE OF ENGINEERING AND RESEARCH, CHENNAI

(Approved by AICTE, Accredited to NAAC UGC with "A" Grade, Affiliated to ANNA UNIVERSITY, Chennai)

International Conference on Modern Engineering, Science &Technology [MEST'2020]

CERTIFICATE OF APPRECIATION

This is to certify **Mr/Ms/Mrs/Dr**.....BALAMURUGAN. V.....

Of ....PAAVAI ENGINEERING COLLEGE, NAMAKKAL..... has Participated & presented a paper entitled .Design and fabrication of Sugarcane chipping cum planing machine..... at **"MEST 2020"** Organized in association with **IJARMET Journal publication** on 17th February 2020 at Ooty, Tamilnadu.

CONVENER **PRINCIPAL** **CHAIRMAN**

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.

Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)

SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....D.ANANDAN.,...ASSISTANT....PROFESSOR.../AGRICULTURE of .....PAAVAI.....ENGINEERING.....COLLEGE..... has participated and presented a paper entitled .....STUDY....AND.....ANALYSIS.....OF.....DAIRY....MARKET..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Ir.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003, TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr P. ARTHIYA of PAAVAI ENGINEERING COLLEGE has participated and presented a paper entitled AGROTECHNIQUES FOR MAXIMIZING YIELD IN GREEN GRAM in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

CHENNAI INSTITUTE OF TECHNOLOGY
Transforming Lives

NACM 2020

CHENNAI INSTITUTE OF TECHNOLOGY

Sarathy Nagar, Kundrathur, Chennai-600069

KNOWLEDGE 4.0
Technical Webinar Series

NATIONAL WEB CONFERENCE
ON
ADVANCED CONSTRUCTION MATERIALS AND TECHNIQUES FOR SUSTAINABLE DEVELOPMENT
(NACM 2020)

Certificate

This is to certify Dr./Mr./Ms. MRS.K. SHARMILA DEVI

PAAVAI ENGINEERING COLLEGE, NAMAKKAL

has participated / presented a paper entitled

Experimental Study on Poly Ethylene Terephthalate as Partial Replacement of Fine Aggregate in Concrete

during National Web Conference on Advanced Construction Materials and Techniques for Sustainable Development - NACM 2020 organised by Department of Civil Engineering, Chennai Institute of Technology on 30th May 2020.

Organising Secretary

Convenor

Principal

Dr. N.G.P. INSTITUTE OF TECHNOLOGY, COIMBATORE - 48.

Approved by AICTE, New Delhi & Affilliated to Anna University, Chennai
Accredited by NAAC & NBA (BME, CSE, ECE, EEE & Mechanical)
Dr. N. G. P. -Kalapatti Road, Coimbatore - 641 048.

DEPARTMENT OF CIVIL ENGINEERING

CERTIFICATE

This is to certify that Mr./Ms./Dr. ...M.RAJKANNAN..,...ASSISTANT....PROFESSOR..... of PAAVAI.ENGINEERING.COLLEGE..(AUTONOMOUS).....has participated / presented a paper titled EXPERIMENTAL...INVESTIGATION....ON..BEHAVIOUR...OF..INCREASING..THE...STRENGTH...OF.... CONCRETE...BY...USING....GLASS....FIBRE.....in the Two Days National Conference on **"River Basin and Flood Risk Management (RFRM – 2019)"** sponsored by DST – Science and Engineering Research Board, New Delhi and organized by Department of Civil Engineering, Dr.N.G.P. Institute of Technology, Coimbatore during September 5 - 6, 2019.

Mr.M.SENTHIL RAJAN
Coordinator

Dr.P.MUTHUPRIYA
HoD-Civil Engg.

Dr.K.PORKUMARAN
Principal

VETRI VINAYAHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(An ISO 9001:2008 Certified Institution and Affiliated to Anna University,Chennai)

Vetri Campus, Thottiam-621 215,Trichy(Dt).

2nd National Conference on Recent Trends in Engineering & Technology

(NCRTET '20)

CERTIFICATE

This is to certify that Mr./Mrs./Ms./Dr. M RAJKANNAN, M E AP/CIVIL *of* PAAVAI ENGINEERING COLLEGE *has participated / presented a paper titled* EXPERIMENTAL INVESTIGATION ON BEHAVIOUR OF INCREASING THE STRENGTH OF CONCRETE BY USING HYPOSLUDGE *in the "2nd National Conference on Recent Trends in Engineering & Technology" organized by* ***Vetri Vinayaha College of Engineering & Technology*** *held on* ***March 13, 2020.***

CO-ORDINATOR

CONVENOR

CHIEF PATRON

VETRI VINAYAHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(An ISO 9001:2008 Certified Institution and Affiliated to Anna University,Chennai)

Vetri Campus, Thottiam-621 215,Trichy(Dt).

2nd National Conference on Recent Trends in Engineering & Technology

(NCRTET '20)

CERTIFICATE

This is to certify that Mr./Mrs./Ms./Dr. M RAJKANNAN, M.E AP/CIVIL

of PAAVAI ENGINEERING COLLEGE *has participated / presented a paper titled* EXPERIMENTAL INVESTIGATION ON THE FLEXURAL BEHAVIOUR OF RC BEAMS USING BFRP SHEET *in the "2nd National Conference on Recent Trends in Engineering & Technology" organized by* ***Vetri Vinayaha College of Engineering & Technology*** *held on* ***March 13, 2020.***

CO-ORDINATOR | CONVENOR | CHIEF PATRON

CHENNAI INSTITUTE OF TECHNOLOGY
Transforming Lives

NACM 2020

CHENNAI INSTITUTE OF TECHNOLOGY

Sarathy Nagar, Kundrathur, Chennai-600069

KNOWLEDGE 4.0
Technical Webinar Series

NATIONAL WEB CONFERENCE
ON
ADVANCED CONSTRUCTION MATERIALS AND TECHNIQUES FOR SUSTAINABLE DEVELOPMENT (NACM 2020)

Certificate

This is to certify Dr./Mr./Ms. P.VIGNESH

PAAVAI ENGINEERING COLEGEC,NAMAKKAL

has participated / presented a paper entitled

EXPERIMENTAL STUDY ON PARTIAL REPLACEMENTOF CEMENT BY RED MUD

during National Web Conference on Advanced Construction Materials and Techniques for Sustainable Development - NACM 2020 organised by Department of Civil Engineering, Chennai Institute of Technology on 30th May 2020.

Organising Secretary

Convenor

Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003, TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....R.KAVIYARAJ..... of ...PAAVAI.....ENGINEERING.....COLLEGE..... has participated and presented a paper entitled ....BIOINFORMATICS : A DETAILED SURVEY ABOUT..... CATEGORIES.....OF.....RESOURCE AND WORKING TOOLS..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr M. SIVARANJANI of PAAVAI ENGINEERING COLLEGE has participated and presented a paper entitled SMILE DETECTION BASED SVM CLASSIFIER in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

MUTHAYAMMAL COLLEGE OF ENGINEERING

Rasipuram - 637 408. Namakkal Dt., Tamilnadu, India.

NCCCTS'20

CERTIFICATE OF PARTICIPATION

This is to Certify that

M.Revathi
Paavai Engineering College
has presented

Companion for Visually Impaired People

at

National Conference on Computing Communication Technology and Science (NCCCTS'20)

held on 6th March 2020

Muthayammal College of Engineering, Rasipuram, Namakkal Dt., Tamilnadu.

Chairperson

Convener

Principal

(NCCCTS'20)

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr R. DHIVYA of PAAVAI ENGINEERING COLLEGE has participated and presented a paper entitled STOCK VALUE FORECASTING USING MACHINE LEARNING in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....R.DHIVYA..... of ..PAAVAI.....ENGINEERING.....COLLEGE..... has participated and presented a paper entitled ..GAS...LEVEL...DETECTION...FOR..AUTOMATIC...BOOKING. .AND...LEAKAGE...DETECTION...USING..INTERNET...OF...THINGS....(IOT)..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

CERTIFICATE

OF PARTICIPATION

SFE
SOCIETY FOR EDUCATION

World Conference on Systems Engineering Research-(WCSER-20)

8th March 2020,Chennai, India

This is to certify that **Mrs.M.Sudha**

of *Paavai Engineering College,Namakkal* has done his/her excellence in presenting the research paper titled *PROGRAMMABLE LOGIC CONTROLLER BASED PROTECTION AND CONTROLLING OF THREE PHASE INDUCTION MOTOR IN PAPER ROLLING MILL*

on 8th March 2020 at Chennai, India.

Dr. James Crusoe
President

SOCIETY FOR EDUCATION · SFE · INTERNATIONAL CONFERENCE

Shraddhasrinath
Convener

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr M. Sudha, Professor of Paavai Engineering College has participated and presented a paper entitled Power Transformer Protection by using Microcontroller in Embedded system in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr Dr. S. Vijayakumar, Professor of Paavai Engineering College has participated and presented a paper entitled Wireless Data Monitoring and Fault Identification by using GSM in Thermal Power Plant in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003, TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr A. Samundeeswari, Professor of Paavai Engineering College has participated and presented a paper entitled Pneumatic Nodule Effectual Disclosure using Thoracic CT Images in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44).
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY
ICET - 2020
DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....KUMARA KRISHNAN.V - AP/EEE..... of .....PAAVAI ENGINEERING COLLEGE..... has participated and presented a paper entitled .....FINGER PRINT BASED ONLINE PAYMENT SYSTEM..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

KARPAGAM
COLLEGE OF ENGINEERING
Rediscover | Refine | Redefine
Coimbatore - 641 032
Autonomous | Affiliated to Anna University, Chennai
Accredited by NAAC with 'A' Grade | NBA (ECE, EEE, CSE, MECH & IT)

INTERNATIONAL CONFERENCE ON ADVANCES AND DEVELOPMENTS IN ELECTRICAL AND ELECTRONICS ENGINEERING (ICADEE 2K20)

CERTIFICATE

OF PARTICIPATION

This is certify that Prof. / Dr. / Mr. / Mrs. /Ms

RATHINAM.A

presented the paper titled

CONTROL SCHEME OF CASCADED H-BRIDGE SSSC FOR MULTILEVEL CONVERTER ZERO SEQUENCE VOLTAGE AND NEGATIVE SEQUENCE CURRENT

in the International Conference on Advances and Developments in Electrical and Electronics Engineering (ICADEE 2K20) organised by Department of Electrical and Electronics Engineering, Karpagam College of Engineering, Coimbatore – 641 032, Tamil Nadu, India during 6th and 7th February 2020.

Dr.V.Tamilselvan
Professor /EEE
Organising Secretary

Dr.C.R.Balamurugan
Professor and Head /EEE
Convenor

Dr.P.Vijayakumar
Principal

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution)

Approved by AICTE, Affiliated to Anna University, Chennai, Accredited by NBA, Accredited with 'A' Grade by NAAC

Othakkalmandapam, Coimbatore - 641 032

Department of Computer Science and Engineering, Information Technology & Master of Computer Applications

Certificate of Presentation

This is to certify that Dr./Prof/Mr./Ms. D.ROOPATHI, AP/EEE

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL

has presented a paper entitled IMPLEMENTATION OF LOAD FREQUENCY CONTROL FOR SINGLE AREA MULTI SOURCES POWER SYSTEM

in the "AICTE Sponsored Fourth International Conference on Green, Intelligent Computing and Communication Systems ICGICCS'20" held at Hindusthan College of Engineering and Technology, Coimbatore, Tamilnadu, India, during 5th & 6th March 2020.

Convener

Principal

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institution)
Approved by AICTE, Affiliated to Anna University, Chennai, Accredited by NBA, Accredited with 'A' Grade by NAAC
Othakalmandapam, Coimbatore - 641 032

Department of Computer Science and Engineering, Information Technology & Master of Computer Applications

Certificate of Presentation

This is to certify that Dr./~~Prof/Mr./Ms.~~ JAGATHEESAN K

of PADAVAI ENGINEERING COLLEGE, NAMAKKAL

has presented a paper entitled LOAD FREQUENCY CONTROL OF NUCLEAR POWER PLANT WITH ALO BASED PID CONTROLLER

in the **"AICTE Sponsored Fourth International Conference on Green, Intelligent Computing and Communication Systems ICGICCS'20"** held at **Hindusthan College of Engineering and Technology**, Coimbatore, Tamilnadu, India, during **5th & 6th March 2020**.

Convener

Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

6th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET - 2020

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr .....S...THIRU...VUKKARASU...APIEEE..... of .....PAAVAI.....ENGINEERING..... has participated and presented a paper entitled ....HARMONICS.....SENSING.....SMART..... .....METER.....USING.....ARDUINO..... in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

Scanned with CamScanner

Materials Today: Proceedings xxx (xxxx) xxx

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

Enhancement of material removal rate in EDM process using silicon carbide based strenx 900 steel

S. Marichamy [a], S. Maniraj [b,*], R. Thanigaivelan [c], S.T. Kumaravel [b], K. Vinoth Babu [a], P. Mallesham [a]

[a] Department of Mechanical Engineering, Sri Indu College of Engineering and Technology, Hyderabad, Telangana, India
[b] Department of Mechanical Engineering, Paavai Engineering College (Autonomous), Namakkal, India
[c] Department of Mechanical Engineering, Muthayammal Engineering College (Autonomous), Namakkal, India

ARTICLE INFO

Article history:
Received 8 November 2019
Received in revised form 20 February 2020
Accepted 24 February 2020
Available online xxxx

Keywords:
Material removal rate
Electrical discharge machining
Strenx 900 steel
Powder mixed dielectric fluid and electrical circuit
Silicon Carbide

ABSTRACT

Material removal rate (MRR) plays an important role in metal industries. Its mainly depends on hardness, strength and toughness of the material. Light hardness materials are easily machined by conventional machining processes. High hardness materials are easily machined by unconventional machining processes. Electrical discharge machining (EDM) process is one of the effective methods to machine very hard materials. To achieve high material removal rate in very hard material is difficult and it takes more time. The silicon carbide-based strenx 900 steel is used as work material for this experimental investigation. The material removal rate has enhanced by modification of electrical circuit, powder mixed dielectric fluid and install oxygen arrangement. These additional facilities are used to improve the machinability characteristics and tool life of the EDM process.
© 2020 Elsevier Ltd. All rights reserved.
Selection and peer-review under responsibility of the scientific committee of the International Conference on Advances in Materials Research – 2019.

1. Introduction

The strenx 900 is a high-strength structural steel and wear resistant steel which is used to many applications like as building construction, bridge works and railways. It consists of various alloying elements such as silicon, titanium, chromium, vanadium and manganese. These alloying elements are used to improve the material properties of the strenx steel. In recent years electrical discharge machining process is used in many fields such as aerospace, automobile, tool and dies [1]. In EDM process, material is removed through electrical discharge produced in between tool and work piece [2]. To enhance the material removal rate, silicon particles and graphite powders are mixed in to the dielectric fluid [3,4]. The discharge energy and pulse duration mainly depends on variation of electric resistance [5]. The material rate has been increased by the charged powder particles [6]. The various effects on material removal rate has been studied in EDM using Water and Powder-Mixed Dielectric Fluid [7]. Material removal rate was analyzed in EDM process using EN-31 steel [8]. Material removal rate is analyzed with different tool materials in heat treated steel [9]. The dual phase brass material is machined by EDM process and the effect of material removal rate was discussed [10] (Table 1).

In present investigations clearly discuss about an enhancement of material removal rate through additional supply of oxygen, modification of electric circuit and powder mixed dielectric fluid in EDM process using silicon carbide based strenx 900 steel.

2. Experimental methodology

The strenx 900E steel with silicon carbide is fabricated through stir casting method. The silicon carbide particles are used as a reinforcement material (6 wt% of SiC). The above 6 wt% of reinforcement SiC provides non uniform material structure [11]. The material properties are evaluated before and after addition of silicon carbide particles. After that, the material is machined by EDM process. The performance of material removal rate is measured by before and after modification of EDM process. The enhancement of material removal rate is measured in the modification of EDM circuit and provides oxygen supply. FD7125 Model, Berlin Machine Corporation made EDM was used.

3. Result and discussion

3.1. Enhancement of material removal rate

EDM is used for machining advanced materials and widely used in various industries [13].The strenx 900E was considered as a

* Corresponding author.
E-mail address: maniraj4016@gmail.com (S. Maniraj).

https://doi.org/10.1016/j.matpr.2020.02.806
2214-7853/© 2020 Elsevier Ltd. All rights reserved.
Selection and peer-review under responsibility of the scientific committee of the International Conference on Advances in Materials Research – 2019.

Please cite this article as: S. Marichamy, S. Maniraj, R. Thanigaivelan et al., Enhancement of material removal rate in EDM process using silicon carbide based strenx 900 steel, Materials Today: Proceedings, https://doi.org/10.1016/j.matpr.2020.02.806

St.PETER'S
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(DEEMED TO BE UNIVERSITY U/S 3 OF THE UGC ACT 1956)
AICTE Approved, NAAC Accredited, ISO Certified
Avadi, Chennai-600054

Certificate of paper presentation

This is to certify that

Mr.T.Sathees

of

Paavai Engineering College, Namakkal

has presented a paper titled "Dynamic Analysis and Optimization of Cradle of an Electrical Vehicle" in the International e-Conference on "Futuristic Trends in Mechanical, Materials & Manufacturing (ICMMM 2020)" organized by the Department of Mechanical Engineering on 16th June, 2020.

Mr.S.Dineshkumar & Mr.S.Ranga Rajan
Conference Secretaries

Dr.N.Rajeswari
Conference Chair

Dr.L.MAHESH KUMAR
Registrar

Department of Mechanical Engineering

PSG College of Technology

Coimbatore - 641004

International conference on Integrated Engineering in Automotive Technology

CERTIFICATE

This is to certifiy that Dr./Mr./Ms M.Vinoth kumar ..... has participated and presented a paper on ***International conference on Integrated Engineering in Automotive Technologies,*** held ***PSG College of Technology,*** coimbatore, during 16-17 December 2019.

Title of the paper: Design and simulation Electro Mechanical Brake System

Dr. L. Ashok Kumar
Organising Secretary

Dr. R. Rudramoorthy
Principal

St.PETER'S
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(DEEMED TO BE UNIVERSITY U/S 3 OF THE UGC ACT 1956)
AICTE Approved, NAAC Accredited, ISO Certified
Avadi, Chennai-600054

Certificate of paper presentation

This is to certify that

Mr.N.LOKESHWARAN

of

Paavai Engineering College, Namakkal

has presented a paper titled "Dynamic Analysis and Optimization of Cradle of an Electrical Vehicle" in the International e-Conference on "Futuristic Trends in Mechanical, Materials & Manufacturing (ICMMM 2020)" organized by the Department of Mechanical Engineering on 16th June, 2020.

Mr.S.Dineshkumar & Mr.S.Ranga Rajan
Conference Secretaries

Dr.N.Rajeswari
Conference Chair

Dr.L.MAHESH KUMAR
Registrar

St.PETER'S
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(DEEMED TO BE UNIVERSITY U/S 3 OF THE UGC ACT 1956)
AICTE Approved, NAAC Accredited, ISO Certified
Avadi, Chennai-600054

Certificate of paper presentation

This is to certify that

Mr.N.MANIGANDAN

of

Paavai Engineering College, Namakkal

has presented a paper titled "Dynamic Analysis and Optimization of Cradle of an Electrical Vehicle" in the International e-Conference on "Futuristic Trends in Mechanical, Materials & Manufacturing (ICMMM 2020)" organized by the Department of Mechanical Engineering on 16th June, 2020.

Mr.S.Dineshkumar & Mr.S.Ranga Rajan	Dr.N.Rajeswari	Dr.L.MAHESH KUMAR
Conference Secretaries	Conference Chair	Registrar

Materials Today: Proceedings xxx (xxxx) xxx

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

Enhancement of material removal rate in EDM process using silicon carbide based strenx 900 steel

S. Marichamy [a], S. Maniraj [b,*], R. Thanigaivelan [c], S.T. Kumaravel [b], K. Vinoth Babu [a], P. Mallesham [a]

[a] Department of Mechanical Engineering, Sri Indu College of Engineering and Technology, Hyderabad, Telangana, India
[b] Department of Mechanical Engineering, Paavai Engineering College (Autonomous), Namakkal, India
[c] Department of Mechanical Engineering, Muthayammal Engineering College (Autonomous), Namakkal, India

ARTICLE INFO

Article history:
Received 8 November 2019
Received in revised form 20 February 2020
Accepted 24 February 2020
Available online xxxx

Keywords:
Material removal rate
Electrical discharge machining
Strenx 900 steel
Powder mixed dielectric fluid and electrical circuit
Silicon Carbide

ABSTRACT

Material removal rate (MRR) plays an important role in metal industries. Its mainly depends on hardness, strength and toughness of the material. Light hardness materials are easily machined by conventional machining processes. High hardness materials are easily machined by unconventional machining processes. Electrical discharge machining (EDM) process is one of the effective methods to machine very hard materials. To achieve high material removal rate in very hard material is difficult and it takes more time. The silicon carbide-based strenx 900 steel is used as work material for this experimental investigation. The material removal rate has enhanced by modification of electrical circuit, powder mixed dielectric fluid and install oxygen arrangement. These additional facilities are used to improve the machinability characteristics and tool life of the EDM process.
© 2020 Elsevier Ltd. All rights reserved.
Selection and peer-review under responsibility of the scientific committee of the International Conference on Advances in Materials Research – 2019.

1. Introduction

The strenx 900 is a high-strength structural steel and wear resistant steel which is used to many applications like as building construction, bridge works and railways. It consists of various alloying elements such as silicon, titanium, chromium, vanadium and manganese. These alloying elements are used to improve the material properties of the strenx steel. In recent years electrical discharge machining process is used in many fields such as aerospace, automobile, tool and dies [1]. In EDM process, material is removed through electrical discharge produced in between tool and work piece [2]. To enhance the material removal rate, silicon particles and graphite powders are mixed in to the dielectric fluid [3,4]. The discharge energy and pulse duration mainly depends on variation of electric resistance [5]. The material rate has been increased by the charged powder particles [6]. The various effects on material removal rate has been studied in EDM using Water and Powder-Mixed Dielectric Fluid [7]. Material removal rate was analyzed in EDM process using EN-31 steel [8]. Material removal rate is analyzed with different tool materials in heat treated steel [9]. The dual phase brass material is machined by EDM process and the effect of material removal rate was discussed [10] (Table 1).

In present investigations clearly discuss about an enhancement of material removal rate through additional supply of oxygen, modification of electric circuit and powder mixed dielectric fluid in EDM process using silicon carbide based strenx 900 steel.

2. Experimental methodology

The strenx 900E steel with silicon carbide is fabricated through stir casting method. The silicon carbide particles are used as a reinforcement material (6 wt% of SiC). The above 6 wt% of reinforcement SiC provides non uniform material structure [11]. The material properties are evaluated before and after addition of silicon carbide particles. After that, the material is machined by EDM process. The performance of material removal rate is measured by before and after modification of EDM process. The enhancement of material removal rate is measured in the modification of EDM circuit and provides oxygen supply. FD7125 Model, Berlin Machine Corporation made EDM was used.

3. Result and discussion

3.1. Enhancement of material removal rate

EDM is used for machining advanced materials and widely used in various industries [13].The strenx 900E was considered as a

* Corresponding author.
E-mail address: maniraj4016@gmail.com (S. Maniraj).

https://doi.org/10.1016/j.matpr.2020.02.806
2214-7853/© 2020 Elsevier Ltd. All rights reserved.
Selection and peer-review under responsibility of the scientific committee of the International Conference on Advances in Materials Research – 2019.

Please cite this article as: S. Marichamy, S. Maniraj, R. Thanigaivelan et al., Enhancement of material removal rate in EDM process using silicon carbide based strenx 900 steel, Materials Today: Proceedings, https://doi.org/10.1016/j.matpr.2020.02.806

Materials Today: Proceedings 21 (2020) 727–730

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

Machining parameters optimization in laser beam machining for micro elliptical profiles using TOPSIS method

V. Senthil Kannan [a,*], K. lenin [b], P. Navneethakrishnan [c]

[a] Faculty of Mechanical Engineering, Paavai Engineering College, Pachal, Namakkal 637 018, Tamilnadu, India
[b] Faculty of Mechanical Engineering K. Ramakrishnan College of Engineering, Trichy 621112, Tamilnadu, India
[c] Faculty of Mechanical Engineering, Anna University, BIT Campus, Trichy, Tamilnadu, India

ARTICLE INFO

Article history:
Received 13 June 2019
Received in revised form 28 June 2019
Accepted 30 June 2019
Available online 5 September 2019

Keywords:
Composite
Micro elliptical profile
Area
Perimeter
Taguchi
TOPSIS
Multi objective

ABSTRACT

The material removed from the surface of the material in the laser beam machining is basically depends on the parameters like laser power, cutting speed, pressure of the gas and pulse width. Among all the parameters laser power and cutting speed plays vital role in the case of surface finish, shape and size of the final machining condition. Here, an attempt was made to find the optimum parameters to make the elliptical profile in the aluminium based composite material. For that, dimensions and mathematical characters like area, perimeter were selected as the output responses. L9 orthogonal array with Taguchi method was selected to conduct experiments and to study the effect parameters on the responses. For utilizing the better parameters in future analysis for making micro elliptical profile on the aluminium based composite, an ideal multi objective optimization method TOPSIS was utilized in this work.
© 2019 Elsevier Ltd. All rights reserved.
Peer-review under responsibility of the scientific committee of the International Conference on Recent Trends in Nanomaterials for Energy, Environmental and Engineering Applications.

1. Introduction

Laser beam machining is one of the major unconventional machining process to get desired shape and size of the machining. From, Avanish Kumar Dubey and Vinod Yadava, "Laser beam machining—A review", International Journal of Machine Tools & Manufacture, vol. 48, 2008, pp.609–628 [1] laser beam machining is focused for melting, vaporising to remove material to get desired shape. It is also suitable for making miniature holes in sheet metal, precision machining of micro parts and machining of complex shapes.

The desired shape and size of the miniature and micro holes were entirely depends on the suitable machining parameter. Thus, the process performance can be controlled by the proper selection of the machining parameter. Kuar et al. [2] was conducted the machining the micro drilling on the Zirconium oxide to identify the performance of the CNC pulsed Nd:YAG laser. For obtaining the small HAZ thickness and taper in the micro drilling optimum setting parameters such as pulse frequency and pulse width, gas assisted pressure were identified Sharma et al. [3] carried out an experiment by Nd:YAG laser cutting of nickel based super alloy thin sheet to find the parametric optimization of Kerf characters. The results shows that the optimum parameters for curved profile is totally different from straight profiles.

Adalarasan et al. [4] were carried out an experiment to find the optimum parameter for getting better kerf characteristics and they used grey based response surface methodology for the same.

To obtained the better quality, size and shape, it is essential to optimize the parameters with various responses. In that situation it is not advisable to consider the single objective optimization method for optimize the parameter. So, multi objective optimization technique has turned increasing and important one. Shivade and Shinde 2014 used Taguchi method Gray Relational Analysis. Kumar A., Soota T., Kumar J. Optimize wire-cut EDM process parameter by Grey-based response surface methodology and Kumar et al. (2015) applied desirability function for finding out the optimal process parameter values. Nearly in 2017 Shivakoti et al. recommended the TOPSIS method with fuzzy logic multi objective technique to examine the process parameter for high strength micro marking on gallium nitride (GaN).

Biswas et al. (2015) and Zhang et al. (2015) conduct the experiment and analysis the parameters in micro turning, micro milling was done by Darwish et al. (2017) and micro marking in LBM by Shivakoti et al. (2017). It is clearly known that, from previous studies most of the researchers were made the investigation and analysis in the micro drilling, micro milling and micro turning.

* Corresponding author.

https://doi.org/10.1016/j.matpr.2019.06.747
2214-7853/© 2019 Elsevier Ltd. All rights reserved.
Peer-review under responsibility of the scientific committee of the International Conference on Recent Trends in Nanomaterials for Energy, Environmental and Engineering Applications.

ABOUT THE AUTHOURS

Dr. S. Marichamy received his Diploma in Mechanical Engineering from Directorate of Technical Education (DOTE), Chennai in 2000. He received B.E. degree in Mechanical Engineering from Madras University, Chennai in 2001. He secured M.E. degree in Manufacturing from Anna University in 2008. He got Ph.D. degree in Mechanical Engineering from Anna University in 2017. He served in NBA, NAAC accredited Engineering colleges and have 14 years of professional experience in teaching field. He is published various national and international research papers, books and patents. He is organized and presented various papers in conferences, seminar, etc. He is also a member of several Indian and International professional bodies. His area of interest is Production technology, Unconventional machining processes, Optimization techniques, Metal matrix composites, Machine vision and Mechanical Engineering based measuring instruments.
E-mail: smari2k5@gmail.com

Dr. B.Stalin is currently working as Assistant Professor and Head in Department of Mechanical Engineering, Anna University, Regional Campus Madurai. He obtained his B.E. degree in Mechanical Engineering from Madras University in the year 2002. He secured M.E. Degree in Manufacturing Engineering from Anna University in 2008. He received his Ph.D Degree in Mechanical Engineering at Anna University, Chennai in 2015. He is having more than 15 years of professional teaching experience. He has published 70 research papers in the International and National Journals, many books and patents. He has presented 21 research papers in the International Conferences in reputed institutions, 77 research papers published in the International and National Conferences. He is guiding 5 Ph.D Scholar in faculty of Mechanical Engineering. He is a life member of ISTE, IEI and Member of Engineering Council of India. His research interests include Materials Science and Engineering, Composite Materials, Manufacturing Engineering, Materials Characterization, Powder Metallurgy, Optimization Techniques.
E-mail: stalin1313@gmail.com

Mr.S.Maniraj is currently working as Assistant Professor in the Department of Mechanical Engineering, Pawai Engineering College, Namakkal, Tamilnadu. He completed Bachelor of Engineering in Mechanical Engineering from Anna University, Chennai in 2009 and obtained his Master's of Engineering in CAD/CAM from Anna University, Chennai in 2013. Presently pursing Ph.D in Mechanical Engineering from Anna University, Chennai and his wider areas of research are electrochemical micromachining, metal matrix composites, advanced manufacturing processes and optimization. He has attended many conferences, workshops and seminars organized by premier institutions and industries. He has received best faculty and best research paper awards from Pawai Engineering College for his outstanding contribution in teaching and research. Furthermore, he has presented many technical seminars to the faculty members and students of engineering colleges. He has published many technical papers in SCI and Scopus indexed journals.
E-Mail: maniraj4016@gmail.com

Dr.K.G.Saravanan is currently working as Associate Professor in Department of Mechanical Engineering, Sona College of Technology, and Salem. He obtained his B.E degree in Mechanical Engineering from Periyar University in the year 2003. He secured M.E. Degree in Computer Aided Design from Anna University in 2009. He received his Ph.D Degree in Mechanical Engineering at Anna University, Chennai in 2017. He is having more than 14 years of professional teaching experience. He has published 13 research papers in the International and National Journals. He has presented 05 research papers in the International Conferences in reputed institutions, 15 research papers published in the International and National Conferences. He is guiding 4 P.G. Scholar in Department of Mechanical Engineering. He is a life member of ISTE. His research interests include Automobile Engineering, Design of Mechanical Components, Manufacturing Engineering and Optimization Techniques.
E-mail: kgmechanical@gmail.com

SHANLAX PUBLICATIONS
www.shanlaxpublications.com
publisher@shanlaxpublications.com

UNCONVENTIONAL MACHINING PROCESSES

UNCONVENTIONAL MACHINING PROCESSES

Dr. S.Marichamy | Dr. B.Stalin
Mr. S.Maniraj | Dr. K.G.Saravanan

Materials Today: Proceedings 21 (2020) 701–707

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

Investigation in machining parameter of micro profile and surface characteristics of Al7475 with SiC alloy in LBM

V. Senthil Kannan [a], K. Lenin [b], P. Navneethakrishnan [c]

[a] Faculty of Mechanical Engineering, Paavai Engineering College, Pachal, Namakkal 637 018, Tamilnadu, India
[b] Faculty of Mechanical Engineering, K. Ramakrishnan College of Engineering, Trichy 621 112, Tamilnadu, India
[c] Faculty of Mechanical Engineering, Anna University, BIT Campus, Trichy, Tamilnadu, India

ARTICLE INFO

Article history:
Received 11 June 2019
Accepted 30 June 2019
Available online 27 November 2019

Keywords:
Composite
Micro profile
Al7475
Dimensional stability
Stress concentration
Laser beam machining (LBM)

ABSTRACT

In today's market utilization of suitable machine for machining of composites for the application of aircraft and automotive parts was crucial one, because of their high strength with low weight ratio. Also, the profile such as micro elliptical shape was machined to reduce stress concentration of the area which is in contact with loads. Since the regular circular profile has affected high amount stress concentration than that of elliptical profile for the same loading conditions, an attempt was made in machining of micro elliptical profile on the Al 7475 composite material by using the laser beam machining (LBM). For betterment of profile (dimension and good surface) an analyze was done on the parameters such as scanning speed and laser power of the LBM, The dimensional stability as well as surface qualities were determined and the suitable parameter was suggested for the future work in Al 7475 composite with LBM.
© 2019 Elsevier Ltd. All rights reserved.
Peer-review under responsibility of the scientific committee of the International Conference on Recent Trends in Nanomaterials for Energy, Environmental and Engineering Applications.

1. Introduction

Aluminium composites were widely used in aircraft, automotive and medical appliance due to their special characteristics such as low weight, high corrosive resistance and electrical resistance. The machining of such material by conventional technique was quit complex owing to their high strength. Now a day's laser beam machining found effective and efficient machining method for machining of micro profile. Pulsed laser is mostly used for machining of micro profiles due to low pulse with high power. Nd:YAG laser beam emits high power with narrow wavelength photons than conventional Co2 laser beam. Micro machining under LBM was affected by some machining parameters such as cutting speed, laser power, spot size, pulse width and these are compatible and good relationship with the size and the shape of the profiles. (Chryssolouris 1991; Olsen and Alting 1995). Even though the gas assisted pressure determines the size, shape and dimensions of the micro profile, laser power and cutting speed plays major role in LBM (Darwish et al., 2016) [4,7]. The adjustment of above parameters was responsible for achieving the good quality of micro profile but this is time consuming and tedious process. Therefore, researchers are having good scope to achieve better results.

It is difficult to find the suitable parameter for multiple objectives by approximation and theoretical methods. Although there are many approximation methods and theoretical solutions available to relate the machining process, they are not considering as effective one. Hence, modelling is essential for the quality of machining in function of machining parameter.

2. Literature review

In machining to obtained the better quality it is essential to optimize the parameter for different and contrast objectives. In that situation it is not advisable to consider the single objective optimization method for optimize the parameter. So, multi objective optimization technique has turned increasing and important one. Several researchers uses various optimization techniques like Taguchi method (Shivade and Shinde, 2014), Gray Relational Analysis (Kumar A, Soota T, Kumar J Optimization of wire-cut EDM process parameter by Grey-based response

https://doi.org/10.1016/j.matpr.2019.06.742
2214-7853/© 2019 Elsevier Ltd. All rights reserved.
Peer-review under responsibility of the scientific committee of the International Conference on Recent Trends in Nanomaterials for Energy, Environmental and Engineering Applications.

BANNARI AMMAN INSTITUTE OF TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Chennai - Approved by AICTE - Re-Accredited by NBA and Accredited by NAAC with 'A' Grade)

SATHYAMANGALAM - 638 401 ERODE DISTRICT TAMIL NADU INDIA

CSIR Sponsored

INTERNATIONAL CONFERENCE ON ADVANCES IN MATERIALS RESEARCH - 2019

Organised by

Department of Mechanical Engineering

Certificate

This is to certify that the author(s) MANIRAJ S, THANIGAIVELAN R, VISWANATHAN R, ELUMALAI P

contributed a paper entitled EXPERIMENTAL INVESTIGATION OF MRR AND ROC IN ALUMINIUM METAL MATRIX COMPOSITES

to CSIR sponsored International Conference on Advances in Materials Research (ICAMR-2019) held on December 6 & 7, 2019.

Convenor

Organising Secretary

Patron

Springer

Scanned by CamScanner

VELAMMAL
INSTITUTE OF TECHNOLOGY

Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai
All Programs Accredited by NBA and NAAC
"Velammal Knowledge Park", Chennai - Kolkatta Highway, Ponneri - 601204

VELAMMAL 33 years 1986 - 2019

NBA NATIONAL BOARD OF ACCREDITATION

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20)

06th - 07th March, 2020

CERTIFICATE

This is to certify that Dr./Mr./Ms. R.T. AJAYKARTHIK of Paavai Engineering College has presented a paper titled Anti-Tank Radar guided missile System in the International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20) held during 06th - 07th March 2020, organized by Velammal Institute of Technology, Chennai.

Coordinator

Principal

VSB ENGINEERING COLLEGE

Approved by AICTE, Affliated to Anna University, Chennai
Accrediated by NBA, NAAC & TCS and Certifed by ISO
NH-67 Covai Road, Karudayampalayam Post, Karur, Tamilnadu 639 111

Certificate of Participation

This is to certify that Mr./~~Ms.~~ D.R.P. RATARATHNAM *of*

PAAYAI ENGINEERING COLLEGE *has presented a paper*

on topic CLOUD COMPUTING *in the Event* **STENZ-2K19** *held at*

V S B Engineering College, Karur, Successfully on **5th Jan 2019.**

Mr. M. Parthiban M.Tech(Ph D)	Mr. P. Anbumani M.E	Mr. T.S. Kiruba shankar M.E(Ph. D)
HOD/ CSE	HOD / CSE	Vice Principal

GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to D.R.P. RATHNAM for participating in the event of POTHOLE DETECTION PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

VSB ENGINEERING COLLEGE

Approved by AICTE, Affliated to Anna University, Chennai
Accrediated by NBA, NAAC & TCS and Certifed by ISO
NH-67 Covai Road, Karudayampalayam Post, Karur, Tamilnadu 639 111

Certificate of Participation

This is to certify that Mr./Ms. D.R.P. RAJA RATHNAM *of*
PAAVAI ENGINEERING COLLEGE *has presented a paper*
on topic PCB Manufacturing using Dolcmk *in the Event* **STENZ-2K19** *held at*
V S B Engineering College, Karur, Successfully on **5th Jan 2019.**

Mr. M. Parthiban M.Tech(Ph D)	Mr. P. Anbumani M.E	Mr. T.S. Kiruba shankar M.E(Ph. D)
HOD/ CSE	HOD / CSE	Vice Principal

VELAMMAL
INSTITUTE OF TECHNOLOGY

Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai
All Programs Accredited by NBA and NAAC
"Velammal Knowledge Park", Chennai - Kolkatta Highway, Ponneri - 601204

VELAMMAL 33 years

NBA NATIONAL BOARD OF ACCREDITATION

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20)

06th - 07th March, 2020

CERTIFICATE

This is to certify that Dr./~~Mr./Ms.~~ D.R.P. RAJARATHNAM

of PAAVAI ENGINEERING COLLEGE has

presented a paper titled ANTI - TANK RADAR GUIDED MISSILE SYSTEM

In the International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20) held during 06th - 07th March 2020, organized by Velammal Institute of Technology, Chennai.

M.S.L.D

Coordinator

Principal

GOVERNMENT COLLEGE OF ENGINEERING, SALEM-11

DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to S. MANIKANDAN for participating in the event of FIRE FIGHTING ROBOT PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

VELAMMAL
INSTITUTE OF TECHNOLOGY

Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai
All Programs Accredited by NBA and NAAC
"Velammal Knowledge Park", Chennai - Kolkatta Highway, Ponneri - 601204

VELAMMAL 33 years 1986 - 2019

NBA NATIONAL BOARD OF ACCREDITATION

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20)

06th - 07th March, 2020

CERTIFICATE

This is to certify that Dr./Mr./Ms. R.T. AJAYKARTHIK of Paavai Engineering College has presented a paper titled Anti-Tank Radar guided missile System in the International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20) held during 06th - 07th March 2020, organized by Velammal Institute of Technology, Chennai.

Coordinator

Principal

VSB ENGINEERING COLLEGE

Approved by AICTE, Affliated to Anna University, Chennai
Accrediated by NBA, NAAC & TCS and Certifed by ISO
NH-67 Covai Road, Karudayampalayam Post, Karur, Tamilnadu 639 111

Certificate of Participation

This is to certify that Mr./~~Ms.~~ D.R.P. RATARATHNAM *of*

PAAYAI ENGINEERING COLLEGE *has presented a paper*

on topic CLOUD COMPUTING *in the Event* **STENZ-2K19** *held at*

V S B Engineering College, Karur, Successfully on **5th Jan 2019.**

Mr. M. Parthiban M.Tech(Ph D)	Mr. P. Anbumani M.E	Mr. T.S. Kiruba shankar M.E(Ph. D)
HOD/ CSE	HOD / CSE	Vice Principal

GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to D.R.P. RATHNAM for participating in the event of POTHOLE DETECTION PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

VELAMMAL
INSTITUTE OF TECHNOLOGY

Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai
All Programs Accredited by NBA and NAAC
"Velammal Knowledge Park", Chennai - Kolkatta Highway, Ponneri - 601204

VELAMMAL 33 years

NBA NATIONAL BOARD OF ACCREDITATION

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20)

06th - 07th March, 2020

CERTIFICATE

This is to certify that Dr./~~Mr./Ms.~~ D.R.P. RAJARATHNAM

of PAAVAI ENGINEERING COLLEGE has

presented a paper titled ANTI - TANK RADAR GUIDED MISSILE SYSTEM

In the International Conference on Research Advancements & Challenges in Engineering Sciences (ICRACE'20) held during 06th - 07th March 2020, organized by Velammal Institute of Technology, Chennai.

M.S.L.D

Coordinator

Principal

GOVERNMENT COLLEGE OF ENGINEERING, SALEM-11

DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to S. MANIKANDAN for participating in the event of FIRE FIGHTING ROBOT PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to C.VIBIN STALIN for participating in the event of BLUE TOOTH CONTROL PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

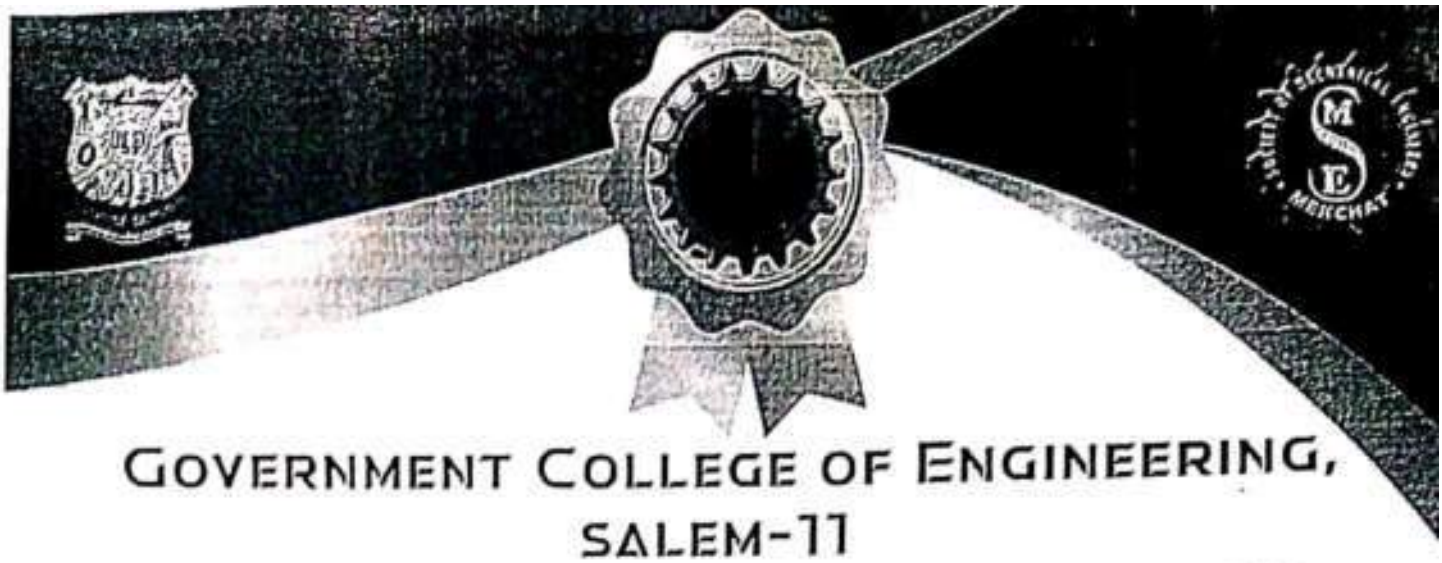
Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to C.VIBINSTALIN for participating in the event of POTHOLE DETECTION PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department



GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to R.ARUNBABU. for participating in the event of BLUE TOOTH CONTROL PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

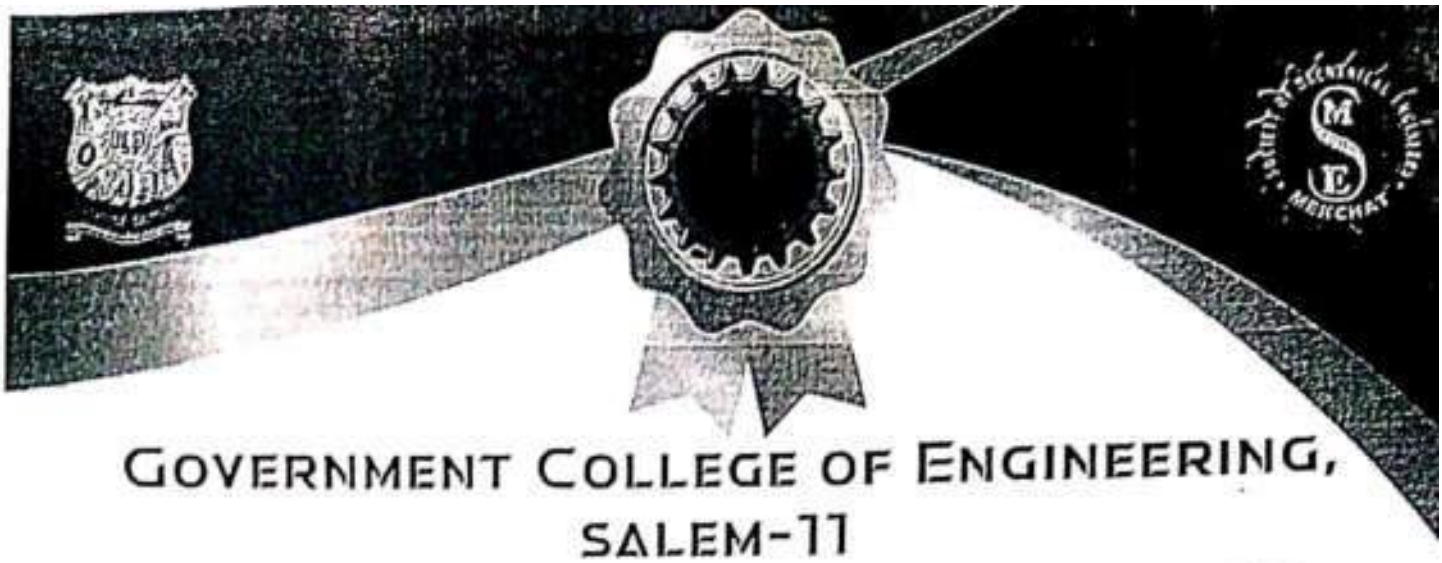
Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to C.VIBINSTALIN for participating in the event of POTHOLE DETECTION PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department



GOVERNMENT COLLEGE OF ENGINEERING,
SALEM-11
DEPARTMENT OF MECHANICAL ENGINEERING

MEKCHAT 19.0

Driven to Empower

CERTIFICATE OF PARTICIPATION

This Certificate is awarded to R.ARUNBABU. for participating in the event of BLUE TOOTH CONTROL PAPER PRESENTATION in "MEKCHAT 19.0" held at Department of Mechanical Engineering, Government College of Engineering, Salem-11.

Convenor

Head of The Department

The Institution of Engineers (India)

Madurai Local Centre

&

K.L.N.College of Information Technology

Jointly organizes

One Day Virtual National Conference on

"Recent Trends in Engineering and Information Technology - RTEIT'20"

Certificate of Presentation

This is to Certify that Dr./Prof./Mr./Ms. **M.PUSHPALATHA,M.E.,** of **PAAVAI ENGINEERING COLLEGE** presented the paper entitled **HEART DISEASE PREDICTION IN EFFICIENT WAY THROUGH MACHINE LEARNING METHOD** in One Day Virtual National Conference on **"Recent Trends in Engineering and Information Technology - RTEIT'20"** jointly organized by **The Institution of Engineers (India), Madurai Local Centre** & **K.L.N.College of Information Technology** on **28th May, 2020.**

Co-Convener
Prof.M.Murugeswari
HOD / ECE

Convener & Principal
Dr.M.Arunachalam
Principal,KLNCIT

PMC TECH
INSPIRE TO INNOVATE

Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING

(Accredited by NAAC with 'B++' Grade)

Koneripalli, HOSUR - 635 117.

Department of Information Technology

Certificate

NATIONAL CONFERENCE ON COMPUTING AND INFORMATION SYSTEMS (NCCIS'20)

This is to certify that ~~Dr.~~ / ~~Mr.~~ / Ms. M. PUSHPALATHA AP/IT *of* Paavai Engineering College (Autonomous) *has presented a paper entitled* Soil Sensors as a Service low cost Soil diagnostics System *in the National Conference on Computing and Information Systems (NCCIS'20) on 05th March 2020.*

Convener

Supported by

Principal

PMC TECH
INSPIRE TO INNOVATE

Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING

(Accredited by NAAC with 'B++' Grade)

Koneripalli, HOSUR - 635 117.

Department of Information Technology

Certificate

NATIONAL CONFERENCE ON COMPUTING AND INFORMATION SYSTEMS (NCCIS'20)

This is to certify that Dr. / Mr. / ~~Ms.~~ B. VENKATESAN ASP & HOD/IT *of* Paavai Engineering College (Autonomous) *has presented a paper entitled* Pony Mail Credentials Exhausting ML *in the* ***National Conference on Computing and Information Systems (NCCIS'20)*** *on 05th March 2020.*

Convener

Supported by

Principal

PMC TECH

Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING

(Accredited by NAAC with 'B++' Grade)

Koneripalli, HOSUR - 635 117.

Department of Information Technology

Certificate

NATIONAL CONFERENCE ON COMPUTING AND INFORMATION SYSTEMS (NCCIS'20)

This is to certify that Dr. / Mr. / Ms. R. DEENADHAYALAN AP/IT of Paavai Engineering College (Autonomous) *has presented a paper entitled* Phoney Mail Credentials Enhancing ML *in the National Conference on Computing and Information Systems (NCCIS'20) on 05th March 2020.*

Convener

Supported by

Principal

PMC TECH
INSPIRE TO INNOVATE

Er. PERUMAL MANIMEKALAI COLLEGE OF ENGINEERING

(Accredited by NAAC with 'B++' Grade)

Koneripalli, HOSUR - 635 117.

Department of Information Technology

Certificate

NATIONAL CONFERENCE ON COMPUTING AND INFORMATION SYSTEMS (NCCIS'20)

This is to certify that Dr. / Mr. / ~~Ms.~~ S. SAKTHIVEL AP/IT *of* Paavai Engineering College (Autonomous) *has presented a paper entitled* Trust Your data - Enterprise data Protection System using Geo fence Technology *in the National Conference on Computing and Information Systems (NCCIS'20) on 05th March 2020.*

Convener

Supported by

Principal

SAVEETHA
INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES
(Declared as Deemed to be University under Section 3 of UGC Act 1956)

SAVEETHA
SCHOOL OF ENGINEERING
Approved by AICTE | IET-UK Accreditation

Institute of Biomedical Engineering and Biotechnology

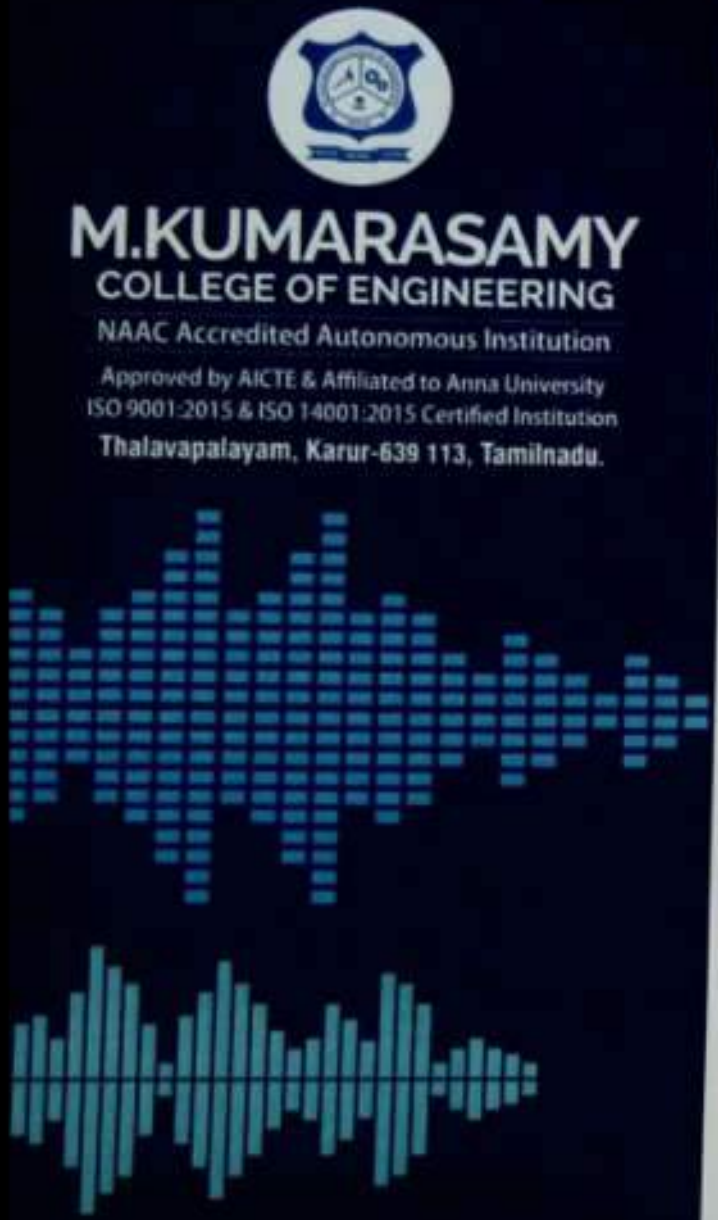
iCRTBSSE 2020

International e - Conference on Recent Trends in Bioscience and Sustainable Engineering

CERTIFICATE

This is to certify that Mrs. P. Anitha of **PAAVAI ENGINEERING COLLEGE,** has published a paper **entitled** **USER DATA CONFIDENTIALITY AND PRIVACY PRESERVATION IN CLOUD USING ARTIFICIAL INTELLIGENCE** in the International Conference on Recent Trends in Bioscience and Sustainable Engineering "iCRTBSSE 2020" held on 20.05.2020

Convener



M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 & ISO 14001:2015 Certified Institution
Thalavapalayam, Karur-639 113, Tamilnadu.

KR

CERTIFICATE OF PARTICIPATION

This is to certify that ~~Dr./Mr./Ms.~~/Mrs. P. ANITHA of PAAVAI ENGINEERING COLLEGE has presented a paper titled DEVELOPMENT OF INFANT INCUBATOR FOR CLINIC IN RURAL AREA in **International Conference** on **Signal Processing and Communication Systems** Organized by the Research and Development Cell, Department of Electronics and Communication Engineering on 05 March 2020.

Dr.S.PALANIVEL RAJAN
Organizing Chair

Dr.C.VIVEK
HoD/ECE

Dr.N.RAMESH BABU
Principal

ISSN: 2349-2163

International Journal of
Innovative Research in Advanced Engineering

A MONTHLY JOURNAL OF ADVANCED ENGINEERING

Is hereby awarding this certificate to

Prof.B.Deepa

Assistant Professor, Department of Information Technology,
Paavai Engineering College, Namakkal, Tamil Nadu, INDIA
deepakathir91@gmail.com

Recognition of the publication of the paper Titled

STOCK VALUE PREDICTION USING MACHINE LEARNING

http://www.ijirae.com/volumes/Vol7/iss03/35.MRITSCE10114.pdf

Published in IJIRAE Journal, Volume 07, Issue 03 March 2020

6 009800 461091

www.ijirae.com

Chief Editor

Mandatory (Elsevier Indexed) Citefactor 3.8 (2019) IMPACT FACTOR VALUE: INNOSPACE: 5.276 (2019) | PIF: 5.469 | JOUR INFO:6.085 | | GRAJIF: 6.456(2019) | INDEX COPERNICUS 2019 = 199.35 |

IJIRAE © 2014-20. All Rights Reserved

LADY DOAK COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
'College with Potential for Excellence'
Re-accredited by NAAC with Grade 'A'
(3rd cycle: 3.44 out of 4)

ICNFMC'19

CERTIFICATE

This is to certify that ~~Mr./Ms.~~/Dr. V.ANNAPOORANI, Associate Professor, Department of MCA, Paavai Engineering College, Namakkal has ~~participated~~ / presented a paper titled Indexing the Enormous Legal documents to the aid of Tech - Savvy Lawyers in the International Conference on "New Frontiers in Mathematics and Computing - ICNFMC'19" held on 18th ~~& 19th~~ February 2019, organised by the Department of Mathematics and the Department of Computer Science, Lady Doak College, Madurai.

Dr. Christianna Singh
Principal & Secretary

Nirmala Rebecca N-
Dr. Nirmala Rebecca Paul & Mrs. N. Jayachandra
Organizing Secretaries

AI QUAD CAMERA

Academic Year 2018-2019

Jawahar Engineering College

Kalaignar Karunanidhi Road, Kaverirangan Nagar,, Saligramam, Chennai, Tamil Nadu

CERTIFICATE OF PARTICIPATION

9th INTERNATIONAL CONFERENCE ON SCIENCE AND INNOVATIVE ENGINEERING-19

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ **GOKULNATH.K** of PAAVAI ENGINEERING COLLEGE (AUTONOMOUS) participated and presented a paper entitled *Analysis of A Vapour Compression Refrigeration System* in the 9th International Conference on Science and Innovative Engineering'19 (ICSIE-2019) organized by Jawahar Engineering College, on 24th March 2019.

Convenor | Principal | Chairman

Jawahar Engineering College

Kalaignar Karunanidhi Road, Kaverirangan Nagar,, Saligramam, Chennai, Tamil Nadu

CERTIFICATE OF PARTICIPATION

9th INTERNATIONAL CONFERENCE ON SCIENCE AND INNOVATIVE ENGINEERING-19

This is to certify that ~~Dr./Prof.~~ Mr./~~Mrs.~~ RAMACHANDRAPRABHU R of PAAVAI ENGINEERING COLLEGE (AUTONOMOUS) participated and presented a paper entitled *Computational Analysis of Clark y Aerofoil* in the 9th International Conference on Science and Innovative Engineering'19 (ICSIE-2019) organized by Jawahar Engineering College, on 24th March 2019.

Convenor Principal Chairman

Jawahar Engineering College

Kalaignar Karunanidhi Road, Kaverirangan Nagar,, Saligramam, Chennai, Tamil Nadu

CERTIFICATE OF PARTICIPATION

9th INTERNATIONAL CONFERENCE ON SCIENCE AND INNOVATIVE ENGINEERING-19

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ **RAJKUMAR D** of PAAVAI ENGINEERING COLLEGE (AUTONOMOUS) participated and presented a paper entitled *Computational Analysis of Clark y Aerofoil* in the 9th International Conference on Science and Innovative Engineering'19 (ICSIE-2019) organized by Jawahar Engineering College, on 24th March 2019.

Convenor | Principal | Chairman

Jawahar Engineering College

Kalaignar Karunanidhi Road, Kaverirangan Nagar,, Saligramam, Chennai, Tamil Nadu

CERTIFICATE OF PARTICIPATION

9th INTERNATIONAL CONFERENCE ON SCIENCE AND INNOVATIVE ENGINEERING-19

This is to certify that ~~Dr./Prof.~~ Mr./~~Ms.~~ **SETHUNATHAN P** of PAAVAI ENGINEERING COLLEGE (AUTONOMOUS) participated and presented a paper entitled *Analysis of A Vapour Compression Refrigeration System* in the 9th International Conference on Science and Innovative Engineering'19 (ICSIE-2019) organized by Jawahar Engineering College, on 24th March 2019.

Convenor | Principal | Chairman

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that ~~Dr./Mr./Ms./Prof~~ Sasi G

of Paavai Engineering College

has presented a paper titled Performance Analysis of Parafoil

Surface

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organising Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that ~~Dr./Mr./Ms./Prof.~~ Rajkumar. D

of Paavai Engineering College

has presented a paper titled Performance Analysis of Parallel System

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organizing Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

ICTACT

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that ~~Dr./Mr./Ms./Prof.~~ Selvanathan. P

of Paavai Engineering College

has presented a paper titled Performance Analysis of Parabolic Surface

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organising Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

ICTACT

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that Dr./Mr./Ms./Prof. S. MARY PRIYA

of PAAVAI ENGINEERING COLLEGE

has presented a paper titled Stress Skin in Typical Semi-monocoque Structure

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organizing Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

ICTACT

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that ~~Dr./Mr./Ms./Prof.~~ V. LAKSHMIPRIYA

of PANIMALAR ENGINEERING COLLEGE

has presented a paper titled Stress Sizing in Typical Semi-monocoque Structures

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organizing Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

KIT - KALAIGNARKARUNANIDHI INSTITUTE OF TECHNOLOGY

(Accredited with 'A' Grade by NAAC)
(Approved by AICTE, New Delhi & Affiliated to Anna University, Channai)
KIT Global Institute for Advanced Studies & Research
Coimbatore - 641 402, Tamilnadu, India.

Certificate of Appreciation

This is to certify that ~~Dr./Mr./Ms./Prof~~ VAISHNAVI. T. S

of PSNA ENGINEERING COLLEGE

has presented a paper titled Stress Sizing in Typical Semi-Monocoque Structure

in the **International Conference on Science, Technology, Engineering and Management (ICSTEM'19)** held during 22-23, March 2019 at KIT-Kalaignarkarunanidhi Institute of Technology, Coimbatore, Tamilnadu, India.

Dr.M.Muthukrishnan	Dr.M.Ramesh	Dr. N. Mohan Das Gandhi	Dr. P. Anbalagan
Organizing Chair	Vice-Principal	Principal	Director - Academics

SUPPORTED BY

M.KUMARASAMY
COLLEGE OF ENGINEERING

NAAC Accredited Autonomous Institution

Approved by AICTE & Affiliated to Anna University

ISO 9001:2015 Certified Institution

Thalavapalayam, Karur, Tamilnadu.

KR Civil

DEPARTMENT OF CIVIL ENGINEERING

Certificate of Participation

This is to certify that

Mr./~~Ms.~~ N. MOORTHI , AP of

PAAVAI ENGINEERING COLLEGE

has made the presentation of paper entitled

EXPERIMENTAL INVESTIGATION ON STRENGTH PROPERTIES OF LIGHT TRANSMITTING CONCRETE

in National Conference on 'TECHNICAL INNOVATIONS AND RESEARCH IN CIVIL ENGINEERING' at M.Kumarasamy College of Engineering, Thalavapalayam, Karur on 15.03.2019.

Coordinator | Convener | Principal

UNIVERSAL COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Radhapuram Road, VALLIOOR-627117

Tamilnadu, India.

International Conference on Engineering Applications '19

CERTIFICATE

This is to certify that Mrs/ Ms .....J. UMA NAMBI..... has

presented a paper entitled ...STUDY ON STRENGTH CHARACTER AND MECHANICAL PROPERTY OF CONCRETE WITH PARTIAL REPLACEMENT OF FINE AGGIREGATE BY PARLITE STONE.

in the 'International Conference on Engineering and Applications' (INCEA-19) held on 12th March 2019.

Prof. E. SUBRAMANIAN	Dr. S. ARIF ABDUL RAHUMAN	Mr. M.H. ZAHEER HUSSAIN	Dr.H. SHAJAHAN
Co-ordinator	*Principal*	*Secretary*	*Chairman*

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

KR Civil

DEPARTMENT OF CIVIL ENGINEERING

Certificate of Participation

This is to certify that

Mr./Ms. S.GAYATHRI, AP of

PAAVAI ENGINEERING COLLEGE

has made the presentation of paper entitled

NUMERICAL INVESTIGATION AND DIRECT STRENGTH DESIGN OF COLD-FORMED STEEL LIPPED ANGLE COLUMNS UNDER PINNED END CONDITIONS

in National Conference on 'TECHNICAL INNOVATIONS AND RESEARCH IN CIVIL ENGINEERING' at M.Kumarasamy College of Engineering, Thalavapalayam, Karur on 15.03.2019.

Coordinator Convener Principal

K.S.R. COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Accredited by NAAC with 'A' grade, Approved by AICTE, New Delhi & Affliated to Anna University)
Tiruchengode - 637 215. Namakkal District, Tamilnadu, India.

ICSEE 2019

DEPARTMENT OF CIVIL ENGINEERING

SECOND INTERNATIONAL CONFERENCE ON CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERING

Certificate

This is to certify that Dr. / Mr. / Mrs. / Ms. S. GAYATHRI, Asst professor
Paavai Engineering college, Namakkal
has participated / presented a paper titled Study on Behaviour of cold formed Steel Lipped Angle Columns Under Axial Compression
In the "SECOND INTERNATIONAL CONFERENCE ON CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERING" (ICSEE - 2019) organized by the Department of Civil Engineering, K.S.R. College of Engineering, Tiruchengode, on 15th March 2019.

Organising Chair

Principal

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Affiliated to Anna University Chennai & Approved by AICTE
Accredited by NAAC with A Grade and Eligible course accredited by NBA
K.S.R. Kalvi Nagar, Tiruchengode - 637 215, Namakkal (Dt), Tamilnadu, India.
www.ksrce.ac.in, Conference website : www.icics.in

Salem Chapter

Second International Conference on Information and Computational Science (ICICS'2019)

(ICICS'2019)
28th - 29th
March 2019

Certificate

This is to certify that Mr./Ms./Dr. V. VIGNESH, AP/CSE

has participated and delivered an oral / poster presentation on paper entitled A STUDY ON THE APPLICABILITY OF ADMDV PROTOCOL FOR MANET in the Second International Conference on Information and Computational Science (ICICS'2019) during 28th - 29th March 2019

G. S. P.
28/3/19
Conference Chair

Principal

MACS INFOSOLUTION INDIA PRIVATE LIMITED

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Affiliated to Anna University Chennai & Approved by AICTE
Accredited by NAAC with A Grade and Eligible course accredited by NBA
K.S.R. Kalvi Nagar, Tiruchengode - 637 215, Namakkal (Dt), Tamilnadu, India.
www.ksrce.ac.in, Conference website : www.icics.in

Salem Chapter

Second International Conference on Information and Computational Science (ICICS'2019)

(ICICS'2019)
28th - 29th
March 2019

Certificate

This is to certify that Mr./Ms./Dr. A.T. STEPHAN THANGARAJ, ASP/CSE has participated and delivered an oral / poster presentation on paper entitled A STUDY ON THE APPLICABILITY OF ADMDV PROTOCOL FOR MANET in the Second International Conference on Information and Computational Science (ICICS'2019) during 28th - 29th March 2019

G. S. P. 28/3/19
Conference Chair

Principal

MACS INFOSOLUTION
INDIA PRIVATE LIMITED

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Affiliated to Anna University Chennai & Approved by AICTE
Accredited by NAAC with A Grade and Eligible course accredited by NBA
K.S.R. Kalvi Nagar, Tiruchengode - 637 215, Namakkal (Dt), Tamilnadu, India.
www.ksrce.ac.in, Conference website : www.icics.in

Salem Chapter

Second International Conference on Information and Computational Science (ICICS'2019)

(ICICS'2019)
28th - 29th
March 2019

Certificate

This is to certify that Mr./Ms./Dr. M.SIVAGANESH, AP/CSE

has participated and delivered an oral / poster presentation on paper entitled MAXIMIZE BODY NODE'S LIFETIME THROUGH CONDITIONAL RETRANSMISSION in the Second International Conference on Information and Computational Science (ICICS'2019) during 28th - 29th March 2019

G. S. 28/3/19
Conference Chair

Principal

MACS INFOSOLUTION INDIA PRIVATE LIMITED

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Affiliated to Anna University Chennai & Approved by AICTE
Accredited by NAAC with A Grade and Eligible course accredited by NBA
K.S.R. Kalvi Nagar, Tiruchengode - 637 215, Namakkal (Dt), Tamilnadu, India.
www.ksrce.ac.in, Conference website : www.icics.in

Salem Chapter

Second International Conference on Information and Computational Science (ICICS'2019)

(ICICS'2019)
28th - 29th
March 2019

Certificate

This is to certify that Mr./Ms./Dr. S. SATHAPPAN, AP/CSE

has participated and delivered an oral / poster presentation on paper entitled ANALYSIS OF UNCERTAIN DATA CLUSTERING BASED ON DISTANCE SIMILARITY MEASURE OPTIMIZATION APPROACH in the Second International Conference on Information and Computational Science (ICICS'2019) during 28th - 29th March 2019

G. S. P. 28/3/19

Conference Chair

Principal

MACS INFOSOLUTION INDIA PRIVATE LIMITED

Certificate of Participation

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

This is to certify that J. VELUMANI

of PAAVAI ENGINEERING COLLEGE

has

presented a paper titled EFFICIEND DATA ANALYTICAL FOR APPAREL INVENTORY SYSTEM

in the National Conference

on **"Big Data & Business Analytics"** organised by the Department of CSE, IT, MCA and MBA on 29th March 2019.

Dr. P. Panduraja	Dr. S. Thilagamani	Dr. N. Ramesh Babu
COORDINATOR	DEAN & HOD - CSE	PRINCIPAL

Certificate of Participation

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu

This is to certify that Dr A Sudhalakshmi

of Paavai Engineering College

has

presented a paper titled Neural Network Based Web Mining of Social Media Data for Depression Analysis in the National Conference

on **"Big Data & Business Analytics"** organised by the Department of CSE, IT, MCA and MBA on 29th March 2019.

P. Pandiaraja
COORDINATOR

S. Thilagamani
DEAN & HOD - CSE

Dr. N. Ramesh Babu
PRINCIPAL

GCEB CONFLUENCE'19

TEQIP-III SPONSORED

5TH NATIONAL CONFERENCE ON EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GOVERNMENT COLLEGE OF ENGINEERING BARGUR

(An Autonomous Institution, Approved by AICTE,New Delhi & Affiliated to Anna University,Chennai)
KRISHNAGIRI-635 104, TAMILNADU,INDIA

GCEB CONFLUENCE'19

CERTIFICATE

This is to certify that ~~Dr.~~/Mr./~~Ms.~~ V. MAHESHKUMAR, AP/CSE

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL

presented a paper entitled

SHOULDER SURFING RESISTANCE FOR GRAPHICAL PASSWORD USING CCP

in the TEQIP-III Sponsored 5th National Conference on

"EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION"

Organized by Department of Computer Science and Engineering,
Government College of Engineering-Bargur,held on 10th January,2019.

Prof.C.M.I.Karthigeyan	Dr.J.Nafeesa Begum	Dr.M.Chandrasekaran
Coordinator	Convener	Principal

GCEB CONFLUENCE'19

TEQIP-III SPONSORED

5TH NATIONAL CONFERENCE ON EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GOVERNMENT COLLEGE OF ENGINEERING BARGUR

(An Autonomous Institution, Approved by AICTE,New Delhi & Affiliated to Anna University,Chennai)
KRISHNAGIRI-635 104,
TAMILNADU,INDIA

GCEB CONFLUENCE'19

CERTIFICATE

This is to certify that ~~Dr./Mr.~~/Ms. R. SANTHIYA, AP/CSE

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL

presented a paper entitled

AUTOMATIC SWITCHING PIR SENSOR ON/OFF WITH ARDUINO

in the TEQIP-III Sponsored 5th National Conference on

"EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION"

Organized by Department of Computer Science and Engineering.
Government College of Engineering-Bargur,held on 10th January,2019.

Prof.C.M.T.Karthigeyan	Dr.J.Nafeesa Begum	Dr.M.Chandrasekaran
Coordinator	Convener	Principal

Certificate of Participation

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

This is to certify that Dr D Banumathy

of Paavai Engineering College

has

presented a paper titled Data Analysis and Soil

Classification for Crop Recommendation

using KNN Classifier in the National Conference

on **"Big Data & Business Analytics"** organised by the Department

of CSE, IT, MCA and MBA on 29th March 2019.

Dr. P. Pandiaraja
COORDINATOR

Dr. S. Thilagamani
DEAN & HOD - CSE

Dr. S. Ramesh Babu
PRINCIPAL

Certificate of Participation

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

This is to certify that Dr. N. MAGENDIRAN

of PAAVAI ENGINEERING COLLEGE

has

presented a paper titled EFFICIENT DATA ANALYTICAL FOR APPAREL INVENTORY SYSTEM

in the National Conference

on **"Big Data & Business Analytics"** organised by the Department of CSE, IT, MCA and MBA on 29th March 2019.

Dr. P. Pandiaraja
COORDINATOR

Dr. S. Thilagamani
DEAN & HOD - CSE

Dr. N. Ramesh Babu
PRINCIPAL

Certificate of Participation

M.KUMARASAMY COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

This is to certify that R.DHIVYA , AP - CSE

of PAAVAI ENGINEERING COLLEGE

_____ has

presented a paper titled DATA ANALYSIS AND SOIL CLASSIFICATION FOR CROP RECOMMENDATION USING KNN CLASSIFIER in the National Conference

on **"Big Data & Business Analytics"** organised by the Department

of CSE, IT, MCA and MBA on 29th March 2019.

Dr. P. Pandiaraja	Dr. S. Thilagamani	Dr. N. Ramesh Babu
COORDINATOR	DEAN & HOD - CSE	PRINCIPAL

KR

Certificate of Participation

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

This is to certify that P. RENUKADEVI, ASP-CSE

of PAAVAI ENGINEERING COLLEGE

_____ has

presented a paper titled NEURAL NETWORK BASED WEB MINING OF SOCIAL MEDIA DATA FOR DEPRESSION ANALYSIS in the National Conference

on **"Big Data & Business Analytics"** organised by the Department

of CSE, IT, MCA and MBA on 29th March 2019.

Dr. P. Pandiaraja
COORDINATOR

Dr. S. Thilagamani
DEAN & HOD - CSE

Dr. N. Ramesh Babu
PRINCIPAL

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Affiliated to Anna University Chennai & Approved by AICTE
Accredited by NAAC with A Grade and Eligible course accredited by NBA
K.S.R. Kalvi Nagar, Tiruchengode - 637 215, Namakkal (Dt), Tamilnadu, India.
www.ksrce.ac.in, Conference website : www.icics.in

Salem Chapter

Second International Conference on Information and Computational Science (ICICS'2019)

Certificate

This is to certify that Mr./Ms./Dr. M. REVATHI, AP/CSE

has participated and delivered an oral / poster presentation on paper entitled

3D ADVENTURE GAME USING UNITY

in the Second International Conference on Information and Computational Science (ICICS'2019) during 28th - 29th March 2019

G. S. 28/3/19

Conference Chair

Principal

(ICICS'2019)
28th - 29th
March 2019

MACS INFOSOLUTION INDIA PRIVATE LIMITED

V.R.S.

COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC & An ISO 9001:2008 Recertified Institution
Arasur - 607 107, Villupuram District

1994 - 2019

ICVRSCET-2019

International Conference
on Veracity Research in Scientific Computation
and Engineering Trends

CERTIFICATE

This is to certify that

Dr./Mr./Ms. P. RENUKADEVI

of PAAVAI ENGINEERING COLLEGE

has presented a paper on EFFECTIVE PARKINSON DISEASE PREDICTION USING DATA MINING AND ANALYTICAL TOOLS

in the **"International Conference on Veracity Research in Scientific Computation and Engineering Trends (ICVRSCET 2019)"** organized by **V.R.S. College of Engineering and Technology,** Arasur - 607 107, Villupuram District, Tamilnadu, India, on 23rd March, 2019.

Dr.GunaseHaran Manogaran
International Chair

Dr.N.Anbazhaghan
General Chair

Tmt.Vijaya Muthuvannan
Patron

GCEB

CONFLUENCE'19

TEQIP-III SPONSORED

5TH NATIONAL CONFERENCE ON EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GOVERNMENT COLLEGE OF ENGINEERING BARGUR

(An Autonomous Institution, Approved by AICTE,New Delhi & Affiliated to Anna University,Chennai)
KRISHNAGIRI-635 104,
TAMILNADU,INDIA

GCEB CONFLUENCE'19

CERTIFICATE

This is to certify that Dr./Mr./Ms. M. REVATHI, AP/CSE

of PAAVAI ENGINEERING COLLEGE, NAMMAKKAL

presented a paper entitled

AUTOMATIC SWITCHING PIR SENSOR ON\OFF WITH ARDUINO

in the TEQIP-III Sponsored 5th National Conference on

"EMERGING TRENDS IN ADVANCED COMPUTING AND COMMUNICATION"

Organized by Department of Computer Science and Engineering.

Government College of Engineering-Bargur,held on 10th January,2019.

Prof.C.M.T.Karthigeyan	Dr.J.Nafeesa Begum	Dr.M.Chandrasekaran
Coordinator	Convener	Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ E. Sangeetha, Assistant Professor

of Paavai Engineering College, Pachal has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Diabetic foot plantar pressure region measurement system held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

Hosur Institute of Technology & Science

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Department of Computer Science & Engineering

NCETCSIT '19

Certificate of presentation

This is to certify that ~~Mr.~~/Ms./~~Mrs~~ A. Brindha, Assistant Professor

[illegible] Engineering College Presented a paper

Fiber Optics Gas Sensor Based CeO2/MWCNTs Nanno Composites

Nano Composite by One Step Irradiation in the "3rd National Conference

Route [illegible] in Computer Science & Information Technology"

held On 06th March 2019.

Convener

Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr S.Gnanasekaran Assitant Professor

of Paavai Engineering College

has presented a paper entitled

Design of Poultry Coop Atomizing Mixture Using Advanced IOT Controller

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr A. Kumaravel, Assitant Professor

of Paavai Engineering College

has presented a paper entitled Design Methodology for Collision detection and avoidance of train accident using Embedded Controller

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM-ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr S.Satheeshkumar, Assitant Professor

of Paavai Engineering College

has presented a paper entitled A Novel Approach for Diabetic foot plantar pressure measurement system

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM-ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr D.Tharini , Assitant Professor

of Paavai Engineering College

has presented a paper entitled Android based saline control system using IOT

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC (UGC Recognized 2(f) Status) An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr S.R.Thiruvasagam, Assitant Professor

of Paavai Engineering College

has presented a paper entitled Speech recognization based home automation using Embedded System

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ P.Krishnasudha, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Cardless ATM banking with OTP technique using IOT

held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ R.Bhuvaneshwari, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled An Algorithm for Human interaction with computer using hand gesture held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr S.Gnanasekaran Assitant Professor

of Paavai Engineering College

has presented a paper entitled

Measuring the accuracy of a person image in multiple database Using Rashberry

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD, NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr R.Boomidevi, Assitant Professor

of, Paavai Engineering College

has presented a paper entitled

Smart door lock System using bluetooth technology

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM-ROAD,NH-44, NAMAKKAL - 637003, TAMILNADU
Mob: 99420 99122, 99420 99109
Web: http://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr K.Brindha, Assitant Professor

of Paavai Engineering College

has presented a paper entitled Design of phase shifter for radars using advanced controllers

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ R.Karthika, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Smart vehicle security system using IOT

held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ G.Thirupathi, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Smart controlling using IoT Rashberry

held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ K.Nirmala, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Mixed reality Technique for the construction of periodic table

held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ V.Joel Ebnezer, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled Android based Greenhouse controlling system design

held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE-638 060 TAMILNADU INDIA

KONGU

Indian Institute of Chemical Engineers

Department of Chemical Engineering

CERTIFICATE

This is to certify that ~~Mr./Ms./Dr.~~ S.Aswini, Assistant Professor

of Paavai Engineering College has participated in

2nd National Conference on Current & Emerging Process Technologies (CONCEPT 2019)

and presented a paper / ~~poster~~ titled A Noval method of biometric system using Wireless communication held on January 25, 2019.

Organizing Secretary

Head of the Department

Principal

SRIGURU Sri Guru Institute Of Technology

(Affiliated to Anna University), Varathaiyangarpalayam, Near Saravanampatti, Sri Guru College Road, Coimbatore.

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that L. Sujitha Assistant Professor of Paavai Engineering College has attended /presented a paper entitled " A Study of Virtual Reality with Realtime Application " in the International Conference on Future Technologies in Engineering, Science & Humanities (ICFTESH – 2019) on 22nd Feb 2019.

Principal

Convener

Director - SSRG

SRIGURU **Sri Guru Institute Of Technology**

(Affiliated to Anna University), Varathaiyangarpalayam, Near Saravanampatti, Sri Guru College Road, Coimbatore.

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that A.Dhivya, Assistant Professor of Paavai Engineering College has attended /presented a paper entitled " An efficient investigation of human stress based on EEG " in the International Conference on Future Technologies in Engineering, Science & Humanities (ICFTESH – 2019) on 22nd Feb 2019.

Principal

Convener

Director - SSRG

SRIGURU **Sri Guru Institute Of Technology**

(Affiliated to Anna University), Varathaiyangarpalayam, Near Saravanampatti, Sri Guru College Road, Coimbatore.

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that S. Parthiban, Assistant Professor of Paavai Engineering College has attended /presented a paper entitled " Intelligent gas Leakage detection system " in the International Conference on Future Technologies in Engineering, Science & Humanities (ICFTESH – 2019) on 22nd Feb 2019.

Principal

Convener

Director - SSRG

SRIGURU Sri Guru Institute Of Technology

(Affiliated to Anna University), Varathaiyangarpalayam, Near Saravanampatti, Sri Guru College Road, Coimbatore.

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that R.Vetrikani, Assistant Professor of Paavai Engineering College has attended /presented a paper entitled "IOT based toll booth management System" in the International Conference on Future Technologies in Engineering, Science & Humanities (ICFTESH – 2019) on 22nd Feb 2019.

Principal

Convener

Director - SSRG

SRIGURU **Sri Guru Institute Of Technology**

(Affiliated to Anna University), Varathaiyangarpalayam, Near Saravanampatti, Sri Guru College Road, Coimbatore.

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that K. Saranya, Assistant Professor of Paavai Engineering College has attended /presented a paper entitled "Sixth sense Technology using Hand gestures" in the International Conference on Future Technologies in Engineering, Science & Humanities (ICFTESH – 2019) on 22nd Feb 2019.

Principal

Convener

Director - SSRG

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr. G. D.ELVAMANI , AP/EEE
of PAAVAI ENGINEERING COLLEGE
has presented a paper entitled DUAL AXIS SOLAR
TRACKING SYSTEM USING ARDUIND

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

P. Manimekalai	S. Loganathan	D. Arulselvan	A. Natarajan
Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

Second International Conference on NexGen Technologies

Conference World

www.conferenceworld.in

ISBN: 978-93-87793-75-0

Certificate

SENGUNTHAR ENGINEERING COLLEGE
Estd 2001

This certificate acknowledges and honours

Prof./ Dr./ Mr./ Ms. R. Muthukumar

for participating & presenting his/her paper on

COMPARISION OF TRANSIENT STABILITY & HARMONIC ANALYSIS FOR 9 BUS SYSTEM USING ETAP

in

Second International Conference on Nexgen Technologies

Held on 8th-9th March 2019 at

Sengunthar Engineering College

Tiruchengode, Namakkal Dist. Tamilnadu (India)

NexGen'19

SENGUNTHAR
Shrine 2 Success

Prof. A Baladhandapani
Secretary & Correspondent

Dr. C. Venkatesh
Conference Convener

Dr. A.K. Sharma
Editor Conference World

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.

Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr. M. RAJA, A.P/EEE
of PAAVAI ENGINEERING COLLEGE
has presented a paper entitled BIDIRECTIONAL CHOPPER
WITH ZVS FOR SRM

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

P. Manimekalai	S. Loganathan	D. Arulselvan	A. Natarajan
Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr. M.RAJA, AP/EEE
of PANIMALAR ENGINEERING COLLEGE
has presented a paper entitled BIDIRECTIONAL CHOPPER
WITH ZVS FOR SRM

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

ICISRES - 2K19

P. Manimekalai
Dr.P.Manimekalai
Convener

S. Loganathan
Er.S.Loganathan, MIE.,
Hon.Secretary, IE(I), SLC

D. Arulselvan
Er.D.Arulselvan, FIE.,
Chairman, IE(I), SLC

Dr.A.Natarajan
Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr. M. RAJA, AP/EEE
of PANVAI ENGINEERING COLLEGE
has presented a paper entitled BIDIRECTIONAL CHOPPER
WITH ZVS FOR SRM

at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

ICISRES - 2K19

P. Manimekalai	S. Loganathan		
Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44),
NAMAKKAL - 637003. TAMILNADU.

Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in

Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

International Conference on Information Sciences and Renewable Energy Sources (ICISRES-2K19)

Certificate of Participation

Mr/Ms/Mrs/Dr. R. SATHEESHKUMAR, AP/EEE
of PAAVAI ENGINEERING COLLEGE
has presented a paper entitled EXPERIMENTAL INVESTIGATION OF MONO CRYSTALLINE AND POLY CRYSTALLINE SOLAR MODULES
at ICISRES-2K19 held on 07th & 08th March, 2019 organized by Departments of Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering & Master of Computer Applications in association with the Institution of Engineers (India), Salem Local Centre, Salem and International Journal of Computer Applications (IJCA).

ICISRES - 2K19

P. Manimekalai	S. Loganathan	D. Arulselvan	A. Natarajan
Dr.P.Manimekalai	Er.S.Loganathan, MIE.,	Er.D.Arulselvan, FIE.,	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I), SLC	Chairman, IE(I), SLC	Principal

ARUNAI

Engineering College

TIRUVANNAMALAI

4th International Conference on

BEST 2019

Towards tomorrow

BIOENERGY, ENVIRONMENT AND SUSTAINABLE TECHNOLOGIES

28-30 January 2019

Sponsored By

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology

In association with

CERTIFICATE

This is to certify that ~~Dr./Mr./Mrs./Ms~~ D. MURUGESAN

of PAAVAI ENGINEERING COLLEGE

has presented a paper/~~poster~~ on the topic FREQUENCY REGULATION OF HYBRID POWER SYSTEM USING ANT COLONY OPTIMIZATION TECHNIQUE.

in 4th International Conference on Bioenergy,Environment and sustainable Technologies held during 28 - 30 January 2019 at Arunai Engineering College, Tiruvannamalai, Tamilnadu,India.

Er.E.V.Kumaran
Vice Chairman

Prof. R. Praveen Kumar
Organizing Chairman

ANNAMALAI UNIVERSITY

(Accredited with 'A' Grade by NAAC)

Faculty of Engineering and Technology

Department of Mechanical Engineering

(DST - FIST Sponsored Department)

RTMECA - 2018

Certificate

This is to certify that Mr. S. T. Kumaravel, Assistant Professor, Department of Mechanical Engineering, Paavai Engineering College (Autonomous), Pavai Nagar, NH-7, Pachal, Namakkal, 637018, Tamilnadu, India, has participated in the National Conference on " Recent Trends in Mechanical Engineering and CBD Applications - RTMECA - 2018 "under DST - PURSE Programme organised by Department of Mechanical Engineering, Faculty of Engineering and Technology, Annamalai University, Annamalai Nagar - 608002 and Presented his paper entitled "Thermal Analysis and Gas Chromatography Coupled Mass Spectrometry Analysis of Tyre Oil for Internal Combustion Engine" during 2nd and 3rd November 2018.

Dr. P. Ramesh	Dr. E. James Gunasekaran	Dr. C. G. Saravanan	Dr. C. Antony Jeyasehar	Dr. K. Arumugam
Assistant Professor	Associate Professor	Professor and Head	Dean	Registrar (i/c)
Coordinator	Coordinator	Chairman	Faculty of Engineering and Technology	Annamalai University
RTMECA-2018	RTMECA-2018	RTMECA 2018	Annamalai University	

Scanned by CamScanner

INSTITUTE OF ENGINEERING RESEARCH

(A professional body running under VEP Research Events & Education Pvt. Ltd.,
CIN U74900TZ2015PTC024288, Approved by Govt. of India, under companies act 2013)
Salem, Tamilnadu, India - 636 121

www.ierevents.in Certificate No. 0113-1

CERTIFICATE

This is to Certify that

Mr./Ms./Dr./Prof. S.T.Kumaravel

has participated and presented the paper titled

A Comparative Analysis Of Waste Tyre Pyrolysis, Gasification and Liquification Processes

in the International Conference (Code: OTY-F18-04) on

Recent Researches in Engineering & Technology (IER-RRET'18)

held on 28th February 2018

at YWCA Anandagiri, Ooty, India

Conference Chairman

Chief Guest

Scanned by CamScanner

SVS ICCMCT

INTERNATIONAL CONFERENCE ON CIVIL, MECHANICAL, CHEMICAL ENGINEERING & TECHNOLOGIES - 2018 (ICCMCT - 2018)

23 & 24, February 2018 | www.iccmct.com

CERTIFICATE

This Certificate is presented to

Kumaravel S T
Assistant Professor
Department of Mechanical Engineering
Paavai Engineering College
Tamilnadu, India

for presenting the research paper entitled "Advanced Chemical Characterization of Pyrolysis Oils from Waste Tyres and Comparison of Oil Fuel Properties with Conventional Diesel Fuel" in the **International Conference on Civil, Mechanical, Chemical Engineering & Technologies - 2018 (ICCMCT - 2018)** organized by **SVS College of Engineering**, Coimbatore, Tamil Nadu, India, during 23 - 24, February 2018.

SVS COLLEGE OF ENGINEERING
Coimbatore - 642 109, Tamil Nadu, India
www.svsce.edu.in

N. 22/2/18
Dr. N. Shanmuga Sundaram
Organizing Chair

Dr. T. Kannan
Conference Chair

Scanned by CamScanner

Electrochemical Micromachining of Aluminium Alloy Composite

S. Ramesh and V. Subburam

Abstract Electrochemical micromachining (EMM) is in the forefront among the non-traditional machining processes that are brought into micromachining domain. The major influencing factors of EMM process are more sensitive at the micro-level machining, and for achieving precision the right combination of parameters is essential. Continuous research works are required to study and analyse every new possible set of variables that can be applied to carry out this machining process. The objective of the present research work is to generate micro-holes using an aluminium composite workpiece through EMM and study the capability of the process to machine such non-homogenous materials. An EMM set-up developed with pulse power facility for experimental purposes was used to carry out the experiments. The experimentation included an aluminium composite containing ceramic reinforcement as work specimen (anode), a hollow brass electrode as the machining tool and the solution of NaCl (sodium chloride) as the ion-conducting medium (electrolyte) to facilitate the process. The effect of input factors like voltage, current and pulse-on time on response parameters such as machining rate (MR) and overcut (RC) was studied from experimental observations. It was a general observation that speeding up the machining rate with higher level input of parameters affects the accuracy of the process outcome. Generally, the response of the EMM process is slow and requires time to produce machining accuracy.

Keywords Electrochemical micromachining · Aluminium composite · NaCl · Machining rate · Overcut

S. Ramesh (✉)
Department of Mechanical Engineering, KCG College of Technology, Chennai 600097, India
e-mail: ramesh_1968in@yahoo.com

V. Subburam
Department of Mechanical Engineering, Paavai Engineering College, Namakkal 637018, India

© Springer Nature Singapore Pte Ltd. 2019

S. S. Hiremath et al. (eds.), *Advances in Manufacturing Technology*, Lecture Notes in Mechanical Engineering,
https://doi.org/10.1007/978-981-13-6374-0_36

MECHNOVATE

VIT
Vellore Institute of Technology

Certificate Of Participation

This is to certify that

ASST. PROF. C.SURESH

has participated in PAPER PRESENTATION

in Mechnovate'18

organised by American Society of Mechanical Engineers, VIT student section

at VIT Vellore from 22nd-25th March 2018

CONVENOR MECHNOVATE 18	ASME-VIT ADVISOR VIT, VELLORE	VICE CHANCELLOR VIT, VELLORE

KNOWAFEST
Campus Festivals in India

Ignite Engineers

KAPLON

FCS

festPav.com

Scanned by CamScanner

2:57 PM

Sathees paper

REDUCING THE LEAD TIME OF CAR SERVICE BY EXPRESS MAINTENANCE

Mr. R.SATHEESKUMAR,.ME
Department of Mechanical Engineering
Gnanamani College of Technology
Pachal, Namakkal-637408, Tamilnadu

Mr. N.PRITHIVIRAJ,.ME
Assistant Professor
Department of Mechanical Engineering
Gnanamani College of Technology
Pachal, Namakkal-637408, Tamilnadu

Mr.K.ANAND,.ME
Assistant Professor
Department of Mechanical Engineering
Paavai Engineering College
Pachal, Namakkal-637408, Tamilnadu

Abstract : Objective of my project is to reduce the vehicle lead time in maintenance work. Many Vehicles has waiting for repair in many times. So reduce the waiting or unwanted time by this Express Maintenance work. It will improve the customer satisfaction. Better man and machinery utilization. This process will be increasing the service vehicle quantity for every day within the same man power. Improve the customer satisfactions, Reduce the customer waiting time and Better man & machine utilization.

***Keywords*: – maintenance, lead time, line concept.**

OBJECTIVES

All type of Maintenance and repair works are comes under new Express Maintenance Systems. In this system no need for appointment in Express Maintenance. We have all works lead time, so we can fix suitable EM for every vehicle.

After implementing this new Express Maintenance everyday productivity is increased. In this system can eliminate the unwanted waiting time. All type of general repair and parts replacement works done by its timing based.

- ✓ Improve the customer satisfaction by reduce the customer waiting time.
- ✓ Increasing the productivity of the workshop.
- ✓ Better man and machinery utilization.
- ✓ Reducing the lead time of the every vehicle.
- ✓ All type of the additional works & value added services covered in the Express Maintenance.

Regular maintenance is essential to obtaining the highest level of performance, safety and reliability. It can also increase vehicle's resale value. With proper maintenance and care, vehicle will last longer and deliver more dependable, economical performance. In addition to scheduled maintenance, vehicle requires ongoing general maintenance such as fluid checks and visual inspection. Following the manufacturer's recommendations will allow enjoying maximum reliability and peace of mind from your service point.

MAINTENANCE SERVICE SYSTEM

In the Express Maintenance Service system has been introduced by TOYOTA. It has implemented in all the TOYOTA authorized service centers in 2015 onwards. In the Express Maintenance covers only the periodic Maintenance and water wash only within 60 minutes. Other than the additional repair works and value added services not comes under the Express Maintenance.

Express Maintenance 60 done by all appointment customers only. Every service centers have doing maximum ten vehicles per day in this Express Maintenance 60 minutes. In this project we have implemented in the Express Maintenance for all type of maintenance works and general repair works by appointment and walk in vehicles also. Our main objective is reducing the lead time of the vehicle and improving the customer satisfaction by reduces the customer waiting time in this Express Maintenance.

Regular maintenance is essential to obtaining the highest level of performance, safety and reliability. It can also increase vehicle's resale value. With proper maintenance and care, vehicle will last longer and deliver more dependable, economical performance. In addition to scheduled maintenance, vehicle requires ongoing general maintenance such as fluid checks and visual inspection. Following the manufacturer's recommendations will allow enjoying maximum reliability and peace of mind from your service point.

EXPRESS MAINTENANCE

Our time is valuable. So when your needs factory-scheduled maintenance or minor repairs, don't let it slow you down. The Express Maintenance offers everything you need to keep you moving. All from the one place you trust to do it right. Express maintenance provides you with precision service that's precisely timed to fit within your busy schedule.

EXPRESS MAINTENANCE PRODUCTION
Staff 1

- ✓ It consist two man powers.
- ✓ First Technician collects the job card and collects parts from the spares

Mobile view Edit

Scanned with CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S. Maniraj, AP/Mech, Paavai Engineering College

Participated / Presented a paper entitled Optimization Of Process Parameters In Electro Chemical Machining Of Stainless Steel SS304 Using Response Surface Methodology

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

Springer Link

Enhancement of Energy Efficiency Using Environmentally Benign Refrigerant Blends in Vapour Compression Refrigeration System

Advances in Industrial Automation and Smart Manufacturing pp 1021-1033 | Cite as

Conference paper

First Online: 21 October 2020

272

Downloads

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

This study involves theoretical investigations made on a simple vapour compression system working with R152a/R1270/R600 refrigerant mixture. The properties of the mixtures along with that of R22 were obtained from REFPROP 7.0 software for the operating temperature ranging from 0 to 60 °C. CYCLE_D software has also been used for finding the proposed refrigerant mixture's performance. Test results from theoretical study presented that the coefficient of performance of the HFCs and HC refrigerant mixtures being 2.1% higher than that of R22. Compressor power of the mixtures was 1.8% less than that of R22 at 7 °C evaporator temperature and 53 °C condenser temperature. Mixture of the refrigerants showed higher mass flow rate than that of R22, and also its deviation was 36% from R22. Compressor shell outlet temperature of

View **PDF:**

Access through **your institution**

Purchase PDF

Materials Today: Proceedings
Volume 5, Issue 1, Part 3, 2018, Pages 2945-2950

Study on mechanical properties of graphite particulates reinforced aluminium matrix composite fabricated by stir casting technique

V. Mohanavel [a], K. Rajan [b], S. Suresh Kumar [c], G. Vijayan [d], M.S. Vijayanand [e]

Show more

Outline | Share | Cite

https://doi.org/10.1016/j.matpr.2018.01.090

Get rights and content

Abstract

The lineage of applied materials science is always in demand for light weight and highly performing materials. Such materials would find their applications in aircraft, structural, non-structural and automobile industries, etc. The present research study focuses on the production of aluminium (AA6351) matrix composites reinforced in different mass fractions of graphite particulates by using stir casting method. The mass fraction of reinforcement was varied from 0% to 12% in stages of 4%. Hardness and tensile strength of the composite were investigated. The microstructures of the produced composites were examined by scanning electron micrographic test. The SEM images revealed the non-homogeneous distribution of graphite (Gr) particles in the matrix and this may be due to low density of graphite. The test results revealed that the mechanical properties of the composite decrease with increase in the mass fraction of graphite particle content, this may be due to poor interfacial bonding between the reinforcement and the matrix. The brittle nature of the reinforcing particles (graphite) plays a vital role in decreasing the mechanical properties because the graphite as a soft

FEEDBACK

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. J. Anand, AP/Mech, Paavai Engineering College

~~Participated~~ / Presented a paper entitled Noise Reduction Techniques In Automotive Muffler

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ K. ANAND, AP/MECH of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled EVALUATION OF MECHANICAL PROPERTIES FOR JUTE, COIR AND GLASS FIBER REINFORCED WITH POLYMER MATRIX COMPOSITES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

ISSN No. : 2321-9653

iJRASET

International Journal for Research in Applied Science & Engineering Technology

IJRASET is indexed with Crossref for DOI-DOI : 10.22214

Website : www.ijraset.com, E-mail : ijraset@gmail.com

ISRA Journal Impact Factor : 4.895

45.98 INDEX COPERNICUS

THOMSON REUTERS

doi cross ref

TOGETHER WE REACH THE GOAL

Certificate

It is here by certified that the paper ID : IJRASET18457, entitled

Flexural and Impact Behaviour of Kevlar/E-Glass Reinforced Epoxy Matrix Composites

by

K. Anand

after review is found suitable and has been published in Volume 6, Issue VII, July 2018

in

International Journal for Research in Applied Science & Engineering Technology

Good luck for your future endeavors

By

Editor in Chief, IJRASET

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ N. MANIGANDAN /AP/ MECH of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled REVERSE GEAR MECHANISM IN VEHICLE FOR PHYSICALLY-CHALLENGED PEOPLE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ R. MOHANRAJ AP/MECH of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled MODIFICATION AND FABRICATION OF THREE AXIS MODERN TRAILER FOR INDUSTRIAL APPLICATION in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. M. VINOTHKUMAR, AP/MECH, PAAVAI ENGINEERING COLLEGE

~~Participated~~ / Presented a paper entitled NOISE REDUCTION TECHNIQUES IN AUTOMOTIVE MUFFLER

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned with CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that **Mr. T.Sathees**

Participated / Presented a paper entitled **Design And Fabrication Of Soft Flow Dyeing Machine**

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development'** (ISETSD-2019) held on **8th & 9th March 2019**

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that **Mr. G.Suresh kumar**

Participated / Presented a paper entitled **Design And Fabrication Of Soft Flow Dyeing Machine**

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development'** (ISETSD -2019) held on **8th & 9th March 2019**

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that **Mr. J.Mahendran**

Participated / Presented a paper entitled **Design And Fabrication Of Soft Flow Dyeing Machine**

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development'** (ISETSD - 2019) held on **8th & 9th March 2019**

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that **Mr. M. Vinoth kumar**

Participated / Presented a paper entitled **Design And Fabrication Of Soft Flow Dyeing Machine**

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2019)** held on **8th & 9th March 2019**

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS '19

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ Mr.K.Anand

of Paavai Engineering College *for participating and presenting a paper*

entitled Optimization Of Dissimilar Metal Welding Process Parameters

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2019) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 8th & 9th Feb 2019

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

CR Scanned with CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS '19

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ Mr.T.Thangavel

of Paavai Engineering College *for participating and presenting a paper*

entitled Optimization Of Dissimilar Metal Welding Process Parameters

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2019) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 8th & 9th Feb 2019

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

CR Scanned with CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS '19

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ Mr.S.A.Venkatesh

of Paavai Engineering College *for participating and presenting a paper*

entitled Optimization Of Dissimilar Metal Welding Process Parameters

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2019) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 8th & 9th Feb 2019

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

CR Scanned with CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS '19

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ Mr.R.Mohanraj

of Paavai Engineering College *for participating and presenting a paper*

entitled Optimization Of Dissimilar Metal Welding Process Parameters

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2019) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 8th & 9th Feb 2019

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

CR Scanned with CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that **Mr. R.Karthik**

Participated / Presented a paper entitled **Pedal powered Reverse Osmosis Water Purification**

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on **8th & 9th March 2019**

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

Scanned by CamScanner

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to Mr. D. R. P. RAJARATHNAM For having been selected as the BEST PAPER titled IoT ENRICHED VEHICLE TIME GOVERNING SYSTEM at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

PRINCIPAL
PAAVAI ENGINEERING COLLEGE
NAMAKKAL-637 018

Dr. K. Kathiravan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to Mr. D. R. P. RAJARATHNAM For having been selected as the BEST PAPER titled Mobile Controlled Pick & Place Robot using Arduino at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

Dr. K. Kalirajan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to Mr. R.T. AJAY KARTHIK For having been selected as the BEST PAPER titled Automobile Intelligent Anti-Collision System at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

PRINCIPAL
PAAVAI ENGINEERING COLLEGE
PACHAL, NAMAKKAL-637 018.
Dr. K. Sathiyan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to C. SUMITHRA For having been selected as the BEST PAPER titled Automatic Animal Identifier at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

Dr. K. Kathiravan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to Mr. R. Aravababy For having been selected as the BEST PAPER titled Automobile Intelligent Anti-Collision System at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

PRINCIPAL
PAAVAI ENGINEERING COLLEGE
NAMAKKAL

Dr. K. Sathiyan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to S. MANIKANDAN For having been selected as the BEST PAPER titled A Project of Cleaning Smog at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyanarthy
CONVENER

Dr. K. Kathiravan
PRINCIPAL

EASWARI ENGINEERING COLLEGE

(A UNIT OF SRM GROUP OF EDUCATIONAL INSTITUTIONS)
BHARATHI SALAI, RAMAPURAM, CHENNAI – 89.
Affiliated to Anna University, Approved by Govt. of Tamil Nadu & AICTE.
Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified

DEPARTMENT OF AUTOMOBILE ENGINEERING

National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19)

Certificate of Appreciation

Presented to C. VIBIN STALIN For having been selected as the BEST PAPER titled IoT ENRICHED VEHICLE TIME GOVERNING SYSTEM at the National Conference on Recent Developments in Automobile and Mechanical Engineering (NCRDAME'19) organised by Department of Automobile Engineering, Easwari Engineering College, Chennai - 89, on 1st March, 2019.

Mr. S. Saravana Kumar
CO-ORDINATOR

Dr. S. Sathiyamurthy
CONVENER

PRINCIPAL
PAAVAI ENGINEERING COLLEGE
NAMAKKAL-637 018

Dr. K. Kalirajan
PRINCIPAL

Jayaram College of Engineering and Technology

(Affiliated to Anna University), Karattampatti - Pagalavadi, Thuraiyur(T.K), Trichy-621014, Tamilnadu, India.

In Association with

Seventh Sense Research Group

SSRG

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. Mr. B. VENKATESAN

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled "CHECKING HOSPITAL REPORTS VIA BIOMETRIC AUTHENTICATION FOR ACCIDENT VICTIMS USING IOT" in the 4th International Conference on Current Research in Engineering Science and Technology (ICCREST-2019) on 08th March 2019.

Principal

Editor SSRG Journals

MANGAYARKARASI COLLEGE OF ENGINEERING

Approved by AICTE, Affiliated to Anna University,Paravai,Madurai - 625018

In Association with

Seventh Sense Research Group

SSRG

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that B.VENKATESAN

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled IOT BASED FIGHTER ROBOTS FOR MILITARY APPLICATIONS

in the International Conference on Trending Technologies in Engineering Research (ICTER-2019) on 15th March 2019.

Editor - SSRG Journals

Principal

Jayaram College of Engineering and Technology

(Affiliated to Anna University) Karattampatti - Pagalavadi, Thuraiyur T.K., Trichy [illegible] Tamilnadu, India

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms.....M..BABYLATHA.....

of ..PAAYAI....ENGINEERING...COLLEGE.....

has attended/presented a paper entitled "...CHECKING...HOSPITAL..REPORTS..VIA.....

..BIOMETRIC...AUTHENTICATION..FOR...ACCIDENT..VICTIMS...USING..IOT.....

....." in the

4th International Conference on Current Research in Engineering Science and Technology (ICCREST-2019) on 08th March 2019.

Principal

Editor SSRG Journals

V.R.S.

COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC & An ISO 9001:2008 Recertified Institution

Arasur - 607 107, Villupuram District

ICVRSCET-2019

International Conference
on Veracity Research in Scientific Computation
and Engineering Trends

CERTIFICATE

This is to certify that

Dr./Mr./Ms. M. BABYLATHA

of PAAVAI ENGINEERING COLLEGE

has presented a paper on IOT BASED SMART VEHICLE AUTOMATION AND ACCIDENT ALERT SYSTEM

in the **"International Conference on Veracity Research in Scientific Computation and Engineering Trends (ICVRSCET 2019)"** organized by **V.R.S. College of Engineering and Technology,** Arasur - 607 107, Villupuram District, Tamilnadu, India, on 23rd March, 2019.

Dr.Gunasekaran Manogaran
International Chair

Dr.N.Anbazhaghan
General Chair

Tmt.Vijaya Muthuvannan
Patron

V.R.S.

COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC & An ISO 9001:2008 Recertified Institution
Arasur - 607 107, Villupuram District

ICVRSCET-2019

International Conference
on Veracity Research in Scientific Computation
and Engineering Trends

CERTIFICATE

This is to certify that

Dr./Mr./Ms. S. SAKTHIVEL

of PAAVAI ENGINEERING COLLEGE

has presented a paper on IOT ALCOHOL AND HEALTH MONITORING SYSTEM

in the **"International Conference on Veracity Research in Scientific Computation and Engineering Trends (ICVRSCET 2019)"** organized by **V.R.S. College of Engineering and Technology,** Arasur - 607 107, Villupuram District, Tamilnadu, India, on 23rd March, 2019.

Dr.Gunasekaran Manogaran
International Chair

Dr.N.Anbazhaghan
General Chair

Tmt.Vijaya Muthuvannan
Patron

VIVEKANANDHA
COLLEGE OF ARTS & SCIENCES FOR WOMEN

(Autonomous)

(An ISO 9001 : 2008 Certified Institution)

(Affiliated to Periyar University, Salem, Tamilnadu, India. Approved by AICTE,
Re-accredited with 'A' grade by NAAC, New Delhi, Recognized u/s 2(f), 12(B) of UGC Act, 1956)
ELAYAMPALAYAM - 637 205, TIRUCHENGODE (Tk.), NAMAKKAL (Dt.), TAMIL NADU, INDIA.

DEPARTMENT OF MANAGEMENT STUDIES

INTERNATIONAL CONFERENCE ON

TRANSFIGURATION OF INDIA : VISION - 2030

Certificate

This is to certify that Dr. / ~~Mr.~~ / ~~Ms~~ R. RATHIDEVI, ASSO. PROF

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL has

~~participated~~ / presented a paper titled A STUDY ON SHORT AND LONG TERM GROWTH EFFECTS OF FINANCIAL CRISES IN DEVELOPING COUNTRIES in the International Conference on TRANSFIGURATION OF INDIA : VISION - 2030, organised by the Department of Management Studies, held on 24th January, 2019 (Thursday).

Dean - Management Studies 24/1/19

Principal

Prof. Dr. M. KARUNANITHI
Chairman & Secretary

INDIAN ACADEMIC RESEARCHERS ASSOCIATION

Tiruchirappalli, Tamil Nadu 620 021
www.iaraindia.com

International Conference On

ETHICAL ISSUES IN ACADEMIC RESEARCH

Certificate

This is to certify that Mr./Ms./Dr R. RATHI DEVI ASSOCIATE PROFESSOR, PAAVAI ENGINEERING COLLEGE, NAMAKKAL has participated/ presented a paper titled "FINANCIAL ISSUES IN INTERNATIONAL MARKET" in the **"International Conference On ETHICAL ISSUES IN ACADEMIC RESEARCH"** at Syed Husainuddin Hall, Jamal Mohamed College (A), Tiruchirappalli, Tamil Nadu on 21st April 2019.

Dr.N.Murugeswari., Ph.D
Organizing Director
Professor of Women Studies
Bharathidasan University
Tiruchirappalli -24

Dr.C.Paramasivan., Ph.D
Organizing Secretary
Assistant professor of commerce
Periyar E.V.R.College (A)
Tiruchirappalli -23

PAAVAI ENGINEERING COLLEGE

[Autonomous]

NH-44, NAMAKKAL-637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. S SENTHILVELAN, Dept of MCA of Paavai Engineering College participated and presented a paper entitled A Novel Tool For SEARCH Algorithm of Judicial Document For Legal Cases in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. N.V.Natarajan
Chairman

DEPARTMENT OF COMPUTER SCIENCE
PERIYAR UNIVERSITY

Reaccredited NAAC A Grade - State University - NIRF Rank 90
Periyar Palkalai Nagar, Salem – 636 011, Tamil Nadu, India

UGC – SAP Two Day Seminar on

"Recent Trends on Computing" (SRTC - 2018)

Certificate

This is to certify that Mrs. V. Aroquiaraj, Associate Professor in MCA Dept., Paavai Engineering College, Namakkal has presented/participated paper entitled An Idiosyncratic Tool for Retrieving SSADC Algorithm

Co-authored with

in the **UGC – SAP Two Day Seminar on "Recent Trends on Computing" (SRTC - 2018)** organized by the Department of Computer Science, Periyar University, Salem 636 011, held during 21st & 22nd December 2018.

Dr.I. Laurence Aroquiaraj
Organizing Secretaries

Dr. R. Rathipriya
Organizing Secretaries

Prof. Dr. K. Thangavel
Registrar i/c

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. M.SIVAKAMI, Dept of MCA of Paavai Engineering college participated and presented a paper entitled A Rapid Representation of Sorting and retrieving tool for large Datasets from Web in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Academic Year 2017-2018

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ G. SASI of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled OPTIMIZATION OF FLASH PYROLYSIS AMONG VARIOUS PROCESS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)
NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ D. RAJKUMAR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled ANALYSIS OF LANDING GEAR FOR A TYPICAL LIGHT AIRCRAFT in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ P. SETHUNATHAN of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled COMPUTATIONAL DESIGN OF OPTIMIZED ELEVATOR TO IMPROVE AERODYNAMIC EFFECTS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. A.N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ P. PRASANNA of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled IMPROVING THE MECHANICAL AND THERMAL PROPERTIES OF EPOXY RESIN USING FILLERS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. ⓐ N.V.Natarajan
Chairman

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr/Prof./Mr./Ms.~~ RAMACHANDRAPRABHU.R of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled DESIGN OF A WIND TUNNEL MODEL FOR MEASURING BASE DRAG IN A SUPERSONIC FLOW in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. Ch. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. A.MEIGNANAMOORTHI ASSISTANT PROFESSOR of CIVIL Engg. Dept., PEC., NAMAKKAL participated and presented a paper entitled EXPERIMENTAL STUDY ON STRENGTH AND DURABILITY PROPERTIES OF STEEL-BANANA HYBRID FIBRE REINFORCED CONCRETE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. S.KIRUTHIKA ASSISTANT PROFESSOR of CIVIL Engg. Dept., PEC., NAMAKKAL participated and presented a paper entitled EXPERIMENTAL STUDY ON STRENGTH AND DURABILITY PROPERTIES OF STEEL-BANANA HYBRID FIBRE REINFORCED CONCRETE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. A. SUBASHINI ASSISTANT PROFESSOR of CIVIL Engg. Dept., PEC., NAMAKKAL participated and presented a paper entitled EXPERIMENTAL STUDY ON STRENGTH AND DURABILITY PROPERTIES OF STEEL-BANANA HYBRID FIBRE REINFORCED CONCRETE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

XVI International Conference on Recent "Trends in Engineering, Applied Science and Management"

Conference World

www.conferenceworld.in

ISBN:-978-93-87793-26-2

Certificate

This certificate acknowledges and honours

***Prof./ Dr./ Mr./ Ms.*A.Meignanamoorthi**

for participating & presenting his/her paper on

AN EXPERIMENTAL STUDY ON DEGRADATION OF SOLID WASTES USING EFFECTIVE MICROORGANISMS SOLUTION

in

XVI International Conference on Recent "Trends in Engineering, Applied Science and Management"

held on 19th May 2018 at

Osmania University Centre for International Program,
Osmania University Campus, Hyderabad (India)

TEAM-18

Conference World Team Wishes All the Best for your Bright Future

Dr. K.C. Gupta
Convener Conference world

Dr. A.K. Sharma
Editor Conference World
www.conferenceworld.in

OUCIP 766

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that MS. M. BHUVANESWARI, ASSISTANT PROFESSOR, PAAVAI COLLEGE OF ENGG.

Participated / Presented ✓ a paper entitled EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF SEA SAND AS FINE AGGREGATE IN CONCRETE.

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY | **CONVENER** | **PRINCIPAL**

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. J. UMANAMBI of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled STUDY ON MECHANICAL BEHAVIOUR OF REINFORCED CONCRETE BEAMS USING GLASS FIBER REINFORCED POLYMER COMPOSITE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. J. UMANAMBI of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled EXPERIMENTAL INVESTIGATION OF SELF COMPACTION GEOPOLYMER CONCRETE REPLACEMENTS OF R-SAND AND M-SAND USING SILICA FUME WITHVARIOUS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

BEHAVIOUR OF CONCRETE FILLED STEEL TUBULAR COLUMNS

[1]CHANDIRA KUMAR D, [2]MOORTHI N, [3]UMANAMBI J

[1] M.E-Structural Engineering,
[2]AssitantProfessor ,Department of Civil Engineering. ,
3Head of Department, Department of Civil Engineering,
Paavai Engineering College, Namakkal-637018, India

ABSTRACT-Concrete filled steel tubular columns (CFTs) are becoming widely used in engineering. The addition of granite, debris and quarry dust by replacing aggregates in concrete is to improve the compressive strength of CFTs.Concrete Filled Steel Tubes (CFST) is one of many composite elements used at present in civil engineering. Different approaches and design philosophies were adopted in different design codes for it. But for hollow CFST elements, which are more effective than ordinary CFST, any code does not provide information about how to design these elements.In this article reasons of the above-mentioned complex stress state appearance and behaviour of hollow CFST element components in different load stages of compressed stub structural member are analyzed. The test results are presented in diagrams, tables. Previous researches of other investigators are summarized. Differences and similarities in behaviour of solid concrete and composite elements and hollow members with different number of concrete core layers are discussed.

1.INTRODUCTION

1.1. GENERAL-Behavior of composite steel-concrete elements in various loading stages is quite well analyzed by theoretical investigations and experiments. Concrete-Filled Steel Tube (CFST) is one of many composite elements used at present in civil engineering. Different approaches and design philosophies were adopted in different design codes for it. But for hollow CFST elements, of the steel tubular column.This project presents the economical comparison between five different composite columns:

1. Conventional Concrete Filled Steel Tubular Square Columns
2. Concrete Filled Steel Tubular Square Columns with partial replacement of Fine Aggregate by Quarry Dust (25%)
3. Concrete Filled Steel Tubular Square Columns with partial replacement of Coarse Aggregate by Granite (25%)
4. Concrete Filled Steel Tubular Square Columns with partial replacement of Coarse Aggregate by C&D Debris (25%)
5. Hollow Steel Tubular Square Columns

2.MATERIAL COLLECTIONS

EXPERIMENTAL STUDY ON BEHAVIOR OF CONCRETE BEAMS REINFORCED WITH FIBROUS POLYMER (FRP) COMPOSITE BARS

[1]S.SANTHOSH KUMAR, [2]J.UMANAMBL [3]S.SURYAPRAKASH

[1]M E-Structural Engineering.

[2]Head of Department, Department of Civil Engineering

[3]Assistant Professor, Paavai Engineering College, Namakkal-637018, India

Abstract: Conventional concrete structures are reinforced with non prestressed and prestressed steel. The steel is initially protected against corrosion by the alkalinity of the concrete, usually resulting in durable and serviceable construction. For Many structures subjected to aggressive environments, such as marine structures and bridges and parking garages exposed to deicing salts, combinations of moisture, temperature, and chlorides reduce the alkalinity of the concrete and result in the corrosion of reinforcing and prestressing steel.

Recently, composite materials made of fibers embedded in a polymeric resin, also known as fiber-reinforced polymers (FRP), have become an alternative to steel reinforcement for concrete structures. Because FRP materials are nonmagnetic and noncorrosive, the problems of electromagnetic interference and steel corrosion can be avoided with FRP reinforcement. Additionally, FRP materials exhibit several properties, such as high tensile

Strength that makes them suitable for use as structural reinforcement (ACI Committee 440)

INTRODUCTION

1.1 PROPERTIES OF FRP

The physical and mechanical properties of FRP reinforcing bars are presented in this chapter to develop a fundamental understanding of the behavior of FRP bars.

1.1 Density

FRP bars have a density ranging from one-sixth to one-fourth that of steel. The reduced weight leads to lower transportation costs and may ease handling of the bars on the project site.

1.2 Effects of high temperatures

The use of FRP reinforcement is not recommended for structures in which fire resistance is essential to maintain structural integrity.

Because FRP reinforcement is embedded in concrete, the reinforcement cannot burn due to a lack of oxygen; however, the polymers will soften due to the excessive heat.

1.2BEHAVIOUR

The physical and mechanical behaviour of FRP reinforcing bars are presented in this chapter to develop a fundamental understanding of the behaviour of these bars.

2 PROPERTIES OF MATERIALS

Study on Flexural Behavior of ECC Strengthened Reinforced Concrete Beams

[1]J.Doraikkannan, [2]K.Saranya, [3]J.Umanambi
[1]Assistant Professor, [2]PG-Scholar, [3]Associate Professor
[1,2]Department of Civil Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Engineered Cementitious Composite (ECC) is a class of High performance Fibre Reinforced Cementitious Composites (HPFRCC). It is characterized by high tensile ductility and tight crack width control. ECC is emerging in broad applications to enhance the loading capacity and the durability of structures. This paper presents the results of an experimental study conducted on the flexural behaviour of steel reinforced concrete beams partially strengthened with Engineered Cementitious Composite (ECC). A total of twelve beams were cast and tested to study the effect of the length of plastic hinge and the effect of thick layers of ECC provided in the tension zone of beams. Two variations in reinforcement detailing, corresponding to the under and over-reinforced beam sections, were used for the expected flexural tension and compression failures. Along with beam specimens, compressive cylinders and cubes specimen were also cast and tested to evaluate the tensile and compressive characteristics of both ECC and concrete. All beams strengthened using ECC plastic hinges and layers were capable of taking more load than the corresponding control beams. As a result, the beams with PE-ECC indicate excellent ductile manner.

Keywords—Engineered cementitious composite, Polyethelyne fibre , Plastic hinge, Ductility

INTRODUCTION

Concrete is ubiquitous. Annually, more than one ton per capita of concrete is cast for infrastructure construction worldwide. By many measures, concrete is an excellent construction material. However, the mechanical properties and functional characteristics of concrete will have to be improved, in some ways drastically, and these improvements are already emerging in limited forms.

Engineered Cementitious Composites (ECC) is an ultra-ductile cement – based material reinforced with fibres, featuring high ductility and medium fiber content. The performance of ECC is measured in terms of tensile strain hardening capacity. ECC can be defined as a cement-based composite, which is tailored by the randomly oriented polymeric fibres. It can be developed using various polymeric fibres. When subjected to uniaxial tension, ECC exhibits tensile strain hardening with multiple micro-cracks. Typically, the tensile strain capacity of ECC is 1-2% at the fibre content of 2%. The strength and energy criteria of the fibre bridging govern the tensile behavior of ECC when the composite is loaded. This innovative material can be used in repair and rehabilitation works.

RESEARCH SIGNIFICANCE

Recognizing that ductility and strength are vital parameters in the design of concrete structures, it is expected that high tensile strain capacity of ECC will enhance the load carrying capacity and inherent ductility of deficient structures. Since there are no studies on the flexural behavior of steel reinforced RC beams strengthened with ECC in the

An Appraisal of Strength and Ability on Concrete Blocks by Using PFA and Malwa Wastes

[1]T.S. Kumanan, [2]G.Lalithambigai, [3]J.Umanambi
[1]Assistant Professor, [2]PG-Scholar, [3]Head of Department
[1,2,3] Department of Civil Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Concrete is the third largest material consumed by human beings after food and water as per WHO. Concrete plays a vital role in the design and construction of the nation's infrastructure. Almost three quarters of the volume of concrete is composed of aggregates. These are obtained from natural rocks and river beds, thus degrading them slowly. This issue of environmental degradation and need for aggregates demands for the usage of any other alternative source. Global warming is the major concern that makes so many changes in our climate and destroys the ozone layer, which become dangerous to the living beings. Availability of sand is also rare, in order to overcome this causes we have to find better replacing ideas. The cement is partially replaced by Pulverized Fuel Ash and sand is partially replaced by Malwa Waste. Mix proportion is based on IS mix proportion ratio. Specimens are casted and the strength is to be determined for 7, 14, 28 days respectively. The specimen casting and test results are executed in this phase.

Keywords-Pulverized fuel ash, Recycled Coarse Aggregate, Concrete.

1. INTRODUCTION

The waste or recycled materials in concrete is increasing because of the emphasis placed on sustainable construction, the waste glass from in and around the small shops is packed as a waste and disposed as landfill. Besides using waste glass as cullet in glass manufacturing, waste glass is crushed into specified sizes for use as aggregate in various applications such as water filtration, grit plastering, sand cover for sport turf and sand replacement in concrete. A major concern regarding the use of glass in concrete is the chemical reaction that take space between the silica rich glass particle and the alkali in pore solution of concrete, which is called Alkali – Silicate reaction can be very detrimental to the stability of concrete, unless appropriate precautions are taken to minimize its effects. ASR can be prevented or reduced by adding mineral admixtures in the concrete mixture, common mineral admixtures used to minimize ASR are pulverized fuel ash (PFA), silica fume(SF) and metakaolin (MK).

Investigation on Strengthening of RC Beam with SIFCON Laminates

[1]K.Sharmiladevi, [2]M.Sarathkumar, [3]J.Umanambi
[1]Assistant Professor, [2]II - M.E. Structural Engineering student,
[3]Head of Department
[1,2,3]Department of Civil Engineering,
Paavai Engineering College, Namakkal, India

ABSTRACT:

Now a day's natural and manmade disaster like earthquake, cyclone etc., play an important role in the behaviour of structures. Hence the structures has to be designed in a good manner which resists higher seismic and impact forces. Strengthening of existing RC framed buildings for impacting seismic resistance is a challenging engineering problem. Many of the existing buildings are found to have inadequate strength, ductility, or stiffness because they were designed and build when modern seismic requirements did not exist. SIFCON posses high strength, improved ductility, impact resistance and enhanced energy absorption capacity, so it is used as an option for strengthening the conventional reinforced concrete beam. Experimental programmes have to be carried out to study the behaviour of flexural and shear RC beams with precast SIFCON laminates.

KEYWORDS: SIFCON, Aggregates, Ductility, Stiffness.

1. INTRODUCTION:

Concrete is remarkably strong in compression but it is equally weak intension. Hence, the use of plain concrete as a structural material is limited to situations where significant tensile stresses and strains do not develop. SIFCON is the extension of conventional FRC that differs in terms of fabrication and composition. In FRC, the fibre content varies from 1 to 3 % by volume whereas, in SIFCON, the fibre content varies from 6 to20 %.SIFCON is prepared by cement slurry into a mixing of fibres. SIFCON, a high performance material containing a relatively high volume percentage of steel fibres as compared to steelfibre reinforced concrete. SIFCON is a high performance material that possesses excellent mechanical properties coupled with greater energy absorption characteristics.

SIFCON possess properties such as strength (compression, tension, bending and shear), ductility, toughness, durability, stiffness and energy absorption capacity under cyclic loads.

These properties are achieved through an optimized combination of matrix properties, fibre reinforcing parameters and fibre content.

Some of special properties of SIFCON are as follows,

- It has maximum value of shear strength

An Appraisal of Strength and Ability on Concrete Blocks by Using PFA and Malwa Wastes

[1]T.S. Kumanan, [2]G.Lalithambigai, [3]J.Umanambi
[1]Assistant Professor, [2]PG-Scholar, [3]Head of Department
[1,2,3]Department of Civil Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Concrete is the third largest material consumed by human beings after food and water as per WHO. Concrete plays a vital role in the design and construction of the nation's infrastructure. Almost three quarters of the volume of concrete is composed of aggregates. These are obtained from natural rocks and river beds, thus degrading them slowly. This issue of environmental degradation and need for aggregates demands for the usage of any other alternative source. Global warming is the major concern that makes so many changes in our climate and destroys the ozone layer, which become dangerous to the living beings. Availability of sand is also rare, in order to overcome this causes we have to find better replacing ideas. The cement is partially replaced by Pulverized Fuel Ash and sand is partially replaced by Malwa Waste. Mix proportion is based on IS mix proportion ratio. Specimens are casted and the strength is to be determined for 7, 14, 28 days respectively. The specimen casting and test results are executed in this phase.

Keywords-Pulverized fuel ash, Recycled Coarse Aggregate, Concrete.

1. INTRODUCTION

The waste or recycled materials in concrete is increasing because of the emphasis placed on sustainable construction, the waste glass from in and around the small shops is packed as a waste and disposed as landfill. Besides using waste glass as cullet in glass manufacturing, waste glass is crushed into specified sizes for use as aggregate in various applications such as water filtration, grit plastering, sand cover for sport turf and sand replacement in concrete. A major concern regarding the use of glass in concrete is the chemical reaction that take space between the silica rich glass particle and the alkali in pore solution of concrete, which is called Alkali – Silicate reaction can be very detrimental to the stability of concrete, unless appropriate precautions are taken to minimize its effects. ASR can be prevented or reduced by adding mineral admixtures in the concrete mixture, common mineral admixtures used to minimize ASR are pulverized fuel ash (PFA), silica fume(SF) and metakaolin (MK).

M.Kumarasamy
College of Engineering
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 Certified Institution
Thalavapalayam, Karur, Tamilnadu.

Certificate

This is to certify that Mr/Ms./Mrs./Dr. S. GAYATHRI

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL.

participated / presented a paper on SEISMIC BEHAVIOUR OF BRICK MASONRY WALLS WITH FIBRE COMPOSITES

in the NATIONAL CONFERENCE ON ADVANCEMENTS IN MECHANICAL, MANUFACTURING & CIVIL ENGINEERING (NCAMMCE - 18) held on 9th March 2018.

Coordinator

Convenor

Principal

MATRE™
Nurture Engineering Skills

INVESTIGATION OF BRICK MASONRY WALLS WITH FIBRE COMPOSITES

1- J.SOUNDHARAJAN

Student of Final Year M.E-Structural Engineering, Paavai Engineering College

Namakkal-637018, India

2- S.GAYATHRI

AssitantProfessor ,Department of Civil Engineering, , Paavai Engineering College

Namakkal-637018, India

ABSTRACT: In India, 60% of land is vulnerable to seismic excitation. In the past Bhuj Earthquake, it was learned that most of the collapse has been happened in the non-engineered constructions. They include both R.C.C and Masonry buildings. Recent research works in Earthquake resistant design focus on the energy absorption in critical locations of the structure. So here an attempt has been made to enhance the energy absorption capacity of the different masonry walls such as Brick masonry and Hollow block masonry using Nylon fibre composites of 1% volume fraction. The aim of the project is to study the seismic behaviour of hollow block and brick masonry wall with and without fibre reinforcement. Energy absorption capacity parameter is compared by drawing the load –deflection curves. This project consists of two stages. One is finite element analysis using commercial software ANSYS 10. PLANE 42 elements have been chosen for modelling the brick masonry. One of the input parameters of ANSYS is Young's Modulus. It has been obtained from the test results of Brick pillars under compressive loading. The remaining parameter namely Poisson's ratio has been assumed as 0.25 for all the models. Finally both the finite element and experimental analysis results have been compared.

1. INTRODUCTION:

Brick masonry is the oldest building material. In spite of this, the technological development of masonry in earthquake engineering has lagged behind compared to other structural materials like concrete and steel. The paucity of knowledge on the subject has led to a lack of confidence by engineers with regard to use in seismic environment. The last three decades have bestowed on a significant knowledge of earthquake engineering regarding seismic analysis, design and experimental testing facility. Advances in servo-hydraulic technology and computer simulation are making actual shaking more feasible in earthquake engineering, but fundamentally, such researches are being concentrated principally on steel and concrete structures whereas majority of population in India lives in low-strength masonry houses constructed with stone, brick, mud, adobe, etc. Research work has often been carried out on small scale models either under horizontal the behaviour of masonry walls and buildings (Krishna and chandra, 1965; Qamaruddin et all, 1978; Arya and kumar, 1982; Clough et al., 1979; Tomazevic and Velechorsky, 1992). These investigative programmes have led to the results regarding development of methods for seismic resistance, analysis and design as well as new

Certificate

This is to certify that Mr/Ms./Mrs./Dr. N. MOORTHI

of PAAVAI ENGINEERING COLLEGE, NAMAKKAL

participated / presented a paper on EXPERIMENTAL STUDY ON CONRETE FILLED STEEL TUBULAR SQUARE COLUMNS

in the NATIONAL CONFERENCE ON ADVANCEMENTS IN MECHANICAL, MANUFACTURING & CIVIL ENGINEERING (NCAMMCE - 18) held on 9th March 2018.

Coordinator

Convenor

Principal

MAETRE™ Nurture Engineering Skills

K.S.R. COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Accreditated by NAAC with 'A' grade, Approved by AICTE, New Delhi & Affiliated to Anna University)
Tiruchengode - 637 215. Namakkal District, Tamilnadu, India.

DEPARTMENT OF CIVIL ENGINEERING

SIXTH NATIONAL CONFERENCE ON

TRENDY AND SUSTAINABLE DEVELOPMENT IN CIVIL ENGINEERING

Certificate

This is to certify that Dr. / Mr. / Mrs. / Ms. J.UMANAMBI of PAAVAI ENGINEERING COLLEGE

has participated / presented a paper titled TREATMENT AND REUSE OF AUTOMOBILE SERVICE STATION WASTE WATER FOR VEGETATION

In the Sixth National Conference on "TRENDY AND SUSTAINABLE DEVELOPMENT IN CIVIL ENGINEERING" (NCTSDCE '18) Organized by the Department of Civil Engineering, K.S.R. College of Engineering, Tiruchengode, on 9th April 2018.

Convener & HOD / Civil

Principal

TAGORE INSTITUTE OF ENGINEERING AND TECHNOLOGY

Deviyakurichi-636112, Attur (TK), Salem (DT).Website:www.tagoreiet.ac.in
(Approved BY AICTE, New Delhi and Affiliated to Anna University, Chennai)

&

The Institution of Engineers (India)

Salem Local Centre

International Conference on
Recent Innovation in Science, Engineering & Management

ICRISEM-2018

Certificate

This is to certify that Dr./Mr./Ms. J.UMANAMBI ..... *of*

.... PAAVAI ENGINEERING COLLEGE, NAMAKKAL ..... *has presented a paper entitled*

GLASS FIBRES REINFORCED POLYMER COMPOSITES .....

in the International Conference on Recent Innovation in Science, Engineering & Management (ICRISEM-18) organized by ***Tagore Institute of Engineering and Technology****, in association with* ***The Institution of Engineers(India),*** *Salem Local Centre, Salem held on 07th March 2018.*

Dr. R. Vasanthi *Conference Chair*	Dr. S. Senthilkumar *Principal*	Er. SR. Saravanan *Hon.Secretary, IE(I), SLC.*	Dr. K. Pandian *Chairman, IE(I), SLC.*

K.S.R. COLLEGE OF ENGINEERING

(AUTONOMOUS)

(Accreditated by NAAC with 'A' grade, Approved by AICTE, New Delhi & Affiliated to Anna University)
Tiruchengode - 637 215. Namakkal District, Tamilnadu, India.

DEPARTMENT OF CIVIL ENGINEERING

SIXTH NATIONAL CONFERENCE ON

TRENDY AND SUSTAINABLE DEVELOPMENT IN CIVIL ENGINEERING

Certificate

This is to certify that ~~Dr.~~ / ~~Mr.~~ / ~~Mrs.~~ / ~~Ms.~~ M. RAJKANNAN, ASSISTANT PROFESSOR
PAAVAI ENGINEERING COLLEGE
has participated / presented a paper titled STUDY ON STRENGTH PROPERTIES OF CONCRETE
REPLACING EOF STEEL SLAG AS COARSE AGGREGATE

In the Sixth National Conference on "TRENDY AND SUSTAINABLE DEVELOPMENT IN CIVIL ENGINEERING" (NCTSDCE '18)

Organized by the Department of Civil Engineering, K.S.R. College of Engineering, Tiruchengode, on 9th April 2018.

Convener & HOD / Civil

Principal

STUDY ON MECHANICAL BEHAIVIOR OF REINFORCED CONCRETE BEAMS USING GLASS FIBER REINFORCED POLYMER COMPOSITE

[1]K.VIVEK,[2]M.SABARI, [3]J.UMANAMBI
[1]Assistant Professor, [2]PG-Scholar, [3]Head of Department
[1,2,3]Department of Civil Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Though there have been a number of studies on shear strengthening of RC beams using externally bonded fiber reinforced polymer sheets, the behavior of FRP strengthened beams in shear is not fully understood This is partly due to various reinforcement configurations of sheets that can be used for shear strengthening and partly due to different failure modes a strengthened beam undergoes at ultimate state. Furthermore, the experimental data bank for shear strengthening of concrete beams using FRP remains relatively sparse due to which the design algorithms for computing the shear contribution of FRP are not yet clear. The objective of this study is to clarify the role of glass fiber reinforced polymer inclined strips epoxy bonded to the beam web for shear strengthening of reinforced concrete beams. Included in the study are effectiveness in terms of width and spacing of inclined GFRP strips, spacing of internal steel stirrups, and longitudinal steel rebar section

1. INTRODUCTION

Repair and strengthening of R.C beam is now becoming more and more important in the field of structural strengthening and retrofitting. Fiber reinforced polymer (FRP) externally bonding with epoxy resin is recently widely used in construction industry to increase the ultimate strength of structures. This paper presents the result of experimental studies carried out to get the effect of side bonded GFRP laminates to RC beams. The result indicates the strengthened beam by GFRP significantly increases more and more load carrying capacity as compared to reference GFRP to concrete surface. From this work, it is concluded that as deflection goes on increasing that is ultimate load directly varies with deflection. All strengthened beam gives sufficient warning compared to normal beam failure. RC beams most of the time suffered non-uniform loads which induce combine stress of flexure, shear and torsion.

WRAPPING

Beams were designed, so they are failed in flexure and strong in shear. To improve the capacity or performance level of a beam, it is necessary to strengthen or retrofit the beam in flexure. To improve the flexural strength, beams were retrofitted byfull wrapped ,U wrapping, Bottom wrapping.

SURFACE PREPARATION

Before wrapping the composite fabric onto the concrete surface, special consideration was given to the surface preparation. The concrete surface was slightly grinded off. The grinded was used to remove material for enhancing good bounding. And then it was cleaned with air blower to remove all dirt and debris

EPOXY RESIN PREPARATION

Once the surface has been prepared to the required standard, the epoxy resin had been mixed in accordance with manufacturer's instructions. Mixing was carried out in a metal container (araldite GY 257 – 100 parts by weight and hardener HY840 – 50 parts by weight). And it was continued until the mixture of

STUDY ON GLASS FIBRES REINFORCED POLYMER COMPOSITES

[1]M.KAMAL, [2]J.UMANAMBI, [3]P.VIGNESH

[1] M.E-Structural Engineering,

[2]Head of Department

[3]Assistant Professor,

Department of Civil Engineering,Paavai Engineering CollegeNamakkal-637018, India

Abstract: All over the world maintenance and repair of reinforced concrete structures are becoming major challenge for the construction industry. Many reinforced concrete structures that were designed and constructed before the serious application of earthquake-resistant design codes are vulnerable to seismic forces. The serviceability conditions of many buildings have been changed to meet present requirement. The structures are to be strengthened to take additional loads induced by the above factors. In the past research works have been carried out by researchers with regard to effect of Fiber reinforced Polymer (FRP) wrappings for a particular type of wrapping and loading conditions. Not much work has been carried out in a single work to find the effectiveness of Carbon Fiber Reinforced Polymer (CFRP), Glass Fiber Reinforced Polymer (GFRP) wrapping for different span to depth ratios (L/D) of beams and height to least lateral dimension (H/D) ratio of columns. An experimental investigation was conducted to study the effectiveness of wrapping with CFRP and GFRP for different span to depth ratios of control and strengthened reinforced concrete members (beams and columns). The wrapped beams were tested under static and cyclic loading conditions and columns were tested to ultimate load level under uniaxial compression. From the study, the effect of wrapping in load carrying capacity, improvements in stiffness, ductility behaviour have been analysed and a comparison was drawn between CFRP and GFRP wrapping.

INTRODUCTION

GENERAL

The strengthening or retrofitting of existing concrete structures to resist higher design loads, correct deterioration related damage, or increase ductility has traditionally been accomplished using conventional materials and construction techniques. Externally bonded steel plates, steel or concrete wrapped and external post-tensioning are some of the traditional techniques available.

2 STRENGTHENING TECHNIQUES

This chapter presents the behavior and strength of RC Beams retrofitted with FRP jackets. It also includes a summary of methods of strengthening followed by a detailed treatment of the behavior of FRP concrete in RC Beams.

Automation Platform for Application Development

Karthik J[*] Sri Krishna Kumar V[*], Sugavin C[*], Vijay Karthick R[*]

[1]*Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal*

[2,3,4]*Under Graduate Students, Department of CSE, Paavai Engineering College, Namakkal*

Abstract— *Now a days the mobile phones usage has been increased drastically all over the world. Because of Mobile phones , the usage of mobile application has also increased, that is why the mobile application plays important role in our life. The mobile applications help us to do whatever we need to. Automation Platform for Application Development introduces several challenging requirements, such as Application developing, more efficient cloud storage, reduction in time, reusability of application and secure access to data. The proposed system reduces the deploying time and the user does not have necessary to know any programming languages and it supports multiple extensions. By using various types of Application Programming Interface (API) that help in accessing the requested data from APAD platform. APAD platform collects various data like selection of predefined layout (completely customizable), different styles and fonts for each page. User can select various widgets to develop the web applications.*

Keywords— **App development, Android, Web Application**

I. Introduction

Automation Platform for Application Development which helps the user to create the needed mobile application without knowing any programming knowledge. This method which helps in creating application in an easiest way such as selection method. The SDK (software development kit) which provides a platform to develop an application. In Automation Platform for Application Development the creation of mobile application for platforms. The API (APPLICATION PROGRAMMING INTERFACE) that converts the application into required platform. In APAD the applications are created in web console. In Automation Platform for Application Development it helps us to create mobile applications for different fields.

To create an application the user needs to create user id and password for security purpose. Then the user needs to login using user id and password. Where the user id and login are being verified by the server for the further access. After the verification the user get the access to login If the user id and password are correct. The user then enters into the web dashboard to creates required mobile application. User who enters into the Application dashboard where many other options would appear. user may choose Application option from the dashboard to create an application.

In the Application section user can create various Applications and manage the existing Applications. End user applications are directly connected with various servers by using Application programming Interface.

Automation Platform for Application Development collects user data and stored in the Linux based servers. APAD platform gateway communicate with AWS Lambda for storing App user data. Lambda is used to perform multiple process at the same time. It can collect the error logs to store the cloud watch logs. It is used to validate the user or developer permissions.

II Software Description

HTML

HTML is defined as **Hyper Text Mark-up Language(HTML)** for web pages. HTML have a set of predefined tags.

Cyber Security and Privacy in Social Networking Using Private API

Karthik J[*]Padmaraj A[*], Nirmal R[*], Yogaraj J[*]

[1]*Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal*

[2,3,4]Under Graduate Students, Department of CSE, Paavai Engineering College, Namakkal

Abstract— *A social network is a theoretical construct useful in the social study of relationship between individual, group, organization, or even entire society.The social network is mainly used for connecting and communicating with several people from different locations. Now a day's cracking can be very common in the social media because of piracy in API. This system is based on cyber security and privacy in social media with Firebase sdk using private api keys. The code cannot be accessed by the set of API functions that allow the application being written to access content typically only available to the online social network provider. Only the admin can access the web services and the user can access only the Application Interface. This system is based on Open Source and will be licensed under General Public License 2. Users Statistical Data Can be viewed for the user security measures. Clone profiles cannot be functioned, SQL Injection is not possible and Shortened Links cannot be accessed.*

Keywords— App development, Android, Web Application

I. Introduction

The open black connect is an application that bring social media to high level security when compare to other social media's. Protection From Applications social networks frequently employ some sort of application system to the users. In such a system, third party developers are able to write code that is executed in the social network. This code has access to a set of API functions that can allow the application being written to access code typically only available to the online social network provider.

Online social networks are now used by hundreds of millions of people and have become a major platform for communication and interaction between users. This has brought the information of the user to application developers who develop on top of these networks. Social relation and preference information allows for a unique breed of application that did not previously exist in many other social media and networking. Furthermore, social network information is now being correlated with users' physical locations, allowing information about users with their physical environment.

In the Application section user can create an account for the various purposes. The user application maximum interface to the user security function and application interface.

In this paper they propose an architecture for secure request response exchange of data between users. This architecture improves the customization of profiles. Our research suggests that only a proper knowledge of the hacking strategies will prove the best defence in the war against cyber-attacks..

II Software Description

HTML

HTML is defined as **Hyper Text Mark-up Language(HTML)** for web pages. HTML have a set of predefined tags.

HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>), within the web page content.

The starting tag in a pair is the start tag, the ending tag is the end tag (they are also called as opening tags and closing tags).

The purpose of a web browser (client) is to read the requested HTML files and compose them

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India.
(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA, New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. D.BANUMATHY

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled OPTIMAL PARAMETERS TO MAXIMIZE THE CROP PRODUCTION USING BIG DATA MINING

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Convener

ICAIC 18 KCE

KARPAGAM
COLLEGE OF ENGINEERING
Rediscover | Refine | Redefine
Coimbatore - 641032
Autonomous | Affiliated to Anna University, Chennai
Accredited by NAAC With 'A' Grade | Accredited by NBA (ECE, EEE, CSE and IT)

Knowledge Partners

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

International Conference on Advanced Information and Communication Technology - ICAIC'18

CERTIFICATE

This is to certify that Dr. / Mr./ Ms.

R. SANTHIYA, PAAVAI ENGINEERING COLLEGE

has participated and presented a paper in the **"International Conference on Advanced Information and Communication Technology (ICAIC-18)"** during 08th and 09th March, 2018 organized by the Department of Computer Science and Engineering, Karpagam College of Engineering, Coimbatore, Tamilnadu, India.

Paper Title AN EMERGING TECHNOLOGY, IMPLEMENTATION AND APPLICATION OF QOS REQUIREMENT IN WIRELESS BODY AREA NETWORK

Co-ordinator | Convenor | Principal

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622. Tamilnadu, India.

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA, New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

SSRG

Seventh Sense Research Group

Chennai Division. Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. M. SIVA GANESH

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled A RELIABLE FRAMEWORK FOR CROWD SOURCED e HEALTH NETWORKS USING DATA CONGESTION ANALYTICS

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Convener

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. BANUMATHY. D, ASSOCIATE PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled Efficient Heart Disease Prediction using Information Extraction Algorithm in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

CERTIFICATE

OF APPRECIATION

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Mr/Ms-----N.MAGENDIRAN-----

of ---PAAVAI ENGINEERING COLLEGE----------who has presented a paper titled-SECURE BSN-CARE IN HEALTH-CARE SYSTEM USING HYBRID ATTRIBUTE BASED ENCRYPTION---------- in NCICC'18 National Conference on Innovations in Communication and Computing Organized by Department of Electronics and Communication Engineering, SNS College of Technology on 28th March 2018.

CO-ORDINATOR

DEAN

PRINCIPAL

NCICC'18

SNS COLLEGE OF TECHNOLOGY
AN AUTONOMOUS INSTITUTION
APPROVED BY AICTE & AFFILIATED TO ANNA UNIVERSITY
ACCREDITED BY NBA - AICTE & NAAC WITH 'A+' GRADE
SARAVANAMPATTI, COIMBATORE - 35

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India.

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA, New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

Seventh Sense Research Group

SSRG

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. R. DHIVYA

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled MOVING OBJECT DETECTION AND TRACKING IN A VIDEO USING PRINCIPAL COMPONENT ANALYSIS

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Convener

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. R.DHIVYA, ASSISTANT PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled Disease prediction by CNN-EMDRP over Big Data Using MBSGD in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution

International Conference on Intelligent Computing, Nano Science and Renewable Energy Sources

In Association with

The Institution of Engineers (India) SLC, Salem

C.No: SCT / ICICNRES-18 /165

Certificate

Mrs.R.Dhivya, AP/CSE

Paavai Engineering College.

has presented the paper entitled

"Tracking and Detection of Moving Objects - A Survey"

at ICICNRES-18 apprehended on 08 & 09th March 2018

Organized by

Department of Computer Science Engineering, Electrical and Electronics Engineering & Master of Computer Application

Convener	ER.SR.Saravanan	Dr.K.Pandian	Principal
Dr.P.Manimekalai	Hon.Sec.,IE(I),SLC	Chairman,IE(I),SLC	Prof.Dr.R.Prabhu

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution

International Conference on Intelligent Computing, Nano Science and Renewable Energy Sources

In Association with
The Institution of Engineers (India) SLC, Salem

C.No: SCT / ICICNRES-18 /161

Certificate

Mrs.P.Renukadevi, ASP/CSE
Paavai Engineering College.

has presented the paper entitled
" Fuzzy C means Clustering to assess risk of diabetes using Data Mining Techniques"

at ICICNRES-18 apprehended on 08 & 09th March 2018

Organized by

Department of Computer Science Engineering,
Electrical and Electronics Engineering &
Master of Computer Application

P. Manimekalai			
Convener Dr.P.Manimekalai	ER.SR.Saravanan Hon.Sec.,IE(I),SLC	Dr.K.Pandian Chairman,IE(I),SLC	Principal Prof.Dr.R.Prabhu

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. P. RENUKADEVI, ASSOCIATE PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled Disease Prediction by CNN - EMDRP over Big Data Using MBSGD in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution

International Conference on Intelligent Computing, Nano Science and Renewable Energy Sources

In Association with
The Institution of Engineers (India) SLC, Salem

C.No: SCT / ICICNRES-18 /157

Certificate

Mrs.P.Renukadevi, ASP/CSE
Paavai Engineering College.

has presented the paper entitled

" Smart Real Time Driver Monitoring System For Safe Driving Using IoT "

at ICICNRES-18 apprehended on 08 & 09th March 2018

Organized by

Department of Computer Science Engineering, Electrical and Electronics Engineering & Master of Computer Application

P. Manimekalai			
Convener Dr.P.Manimekalai	ER.SR.Saravanan Hon.Sec.,IE(I),SLC	Dr.K.Pandian Chairman,IE(I),SLC	Principal Prof.Dr.R.Prabhu

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. V. MAHESHKUMAR, ASSISTANT PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled Military Based Application Using QR code and Network Security in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. P. SANTHIYA, ASSISTANT PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled Smart Irrigation System Using Arduino and Android in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. M. REVATHI, ASSISTANT PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled An Optimized Crowd Sourced for E-Health Network Using Data Congestion Analytics in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India.

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA, New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

Seventh Sense Research Group

SSRG

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. M. REVATHI

of PAAVAI ENGINEERING COLLEGE

has attended/presented a paper entitled A RELIABLE FRAMEWORK FOR CROWD SOURCED e HEALTH NETWORKS USING DATA CONGESTION ANALYTICS

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Convener

ICAIC 18 KCE

KARPAGAM
COLLEGE OF ENGINEERING
Rediscover | Refine | Redefine
Coimbatore - 641032
Autonomous | Affiliated to Anna University, Chennai
Accredited by NAAC With 'A' Grade | Accredited by NBA (ECE, EEE, CSE and IT)

Knowledge Partners
ICT ACADEMY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

International Conference on Advanced Information and Communication Technology - ICAIC'18

CERTIFICATE

This is to certify that Dr. / Mr./ Ms.

M. REVATHI PAAVAI ENGINEERING COLLEGE

has participated and presented a paper in the **"International Conference on Advanced Information and Communication Technology (ICAIC-18)"** during 08th and 09th March, 2018 organized by the Department of Computer Science and Engineering, Karpagam College of Engineering, Coimbatore, Tamilnadu, India.

Paper Title AN EMERGING TECHNOLOGY, IMPLEMENTATION AND APPLICATION OF QOS REQUIREMENT IN WIRELESS BODY AREA NETWORK

Co-ordinator

Convenor

Principal

3rd National Conference on Innovative Research Trends in Computer Science and Technology (NCIRCST 2018) ISSN: 2454-4248
Volume: 4 Issue: 3 31 – 36

Effective Analysis on Detection of the Security Attacks Based on the Doila Method in Mainframes

Thurkka S Hanumathy D
Final year Student 2-Associate Professor
Department of Computer Science
Paavai Engineering College
Namakkal-637018

ABSTRACT: The idea is to detect the misuse of authorizations by intruders based on the detection method. We present a modern approach of detecting the security attacks by using a detection method known as DOILA (Detection on Invalid Logon Attempts). In this paper, we will discuss on the development of the JCL coding to detect the security attacks and then we will test the coding in Mainframes environment to gauge its effectiveness. Since the virtual machines can be running different operating systems and applications, the attacker can generate attacks in a single vulnerability in any of the operating systems or applications. Our aim is to consider the design choices and develop an intrusion detection architecture that would enable efficient detection and prevention of different types of attacks in Mainframes environment.

KEYWORDS: Job control language, intrusion, authorization, security attacks, invalid logon, personal communications, password threshold and access control.

*****

Introduction

Security Attack is defined as any action that compromises the security of information. Computer security is required because most organizations can be damaged by hostile software or intruders. There may be several forms of damage which are obviously interrelated. Computer security can be very complex and may be very confusing to many people. It can even be a controversial subject. Network administrators like to believe that their network is secure and those who break into networks may like to believe that they can break into any network. Improper installation, selecting wrong components, incomplete devices, lack of knowledge, unsecure or less secure network components can cause physical threat to the critical network resources. The purpose of information security is to preserve the three elements: confidentiality, integrity and availability.

Details

Confidentiality means allowing only authorized users or systems to access protected data. The most widespread form of confidentiality failure today occurs with identity theft. System integrity means that no unauthorized parties have intentionally or unintentionally altered the information (for example, billing records), and do not have the authority to alter it. Additionally, the proof that the data has not been modified by unauthorized persons is the accountability that bank auditors seek the most expressions), but little or no difference within classes (same person or expressions in various conditions). Availability is synonymous with uptime when discussing hardware. When considered in the larger picture, uptime is not just a function of hardware, but also of software stability and resilience to disaster or attack. Availability is about resilience, business continuity, and disaster recovery. It is essential to ensure backup information and systems are in place for recovery purposes.

Fig 1: Security concept

Methods Of Authentication

Authentication is the process by which the computer system verifies who you are and also if a user enters the system, the user's identity must be verified through the use of some mechanism. Methods of authentication can be classified by one of three methods:

- Something that is known by the user (passphrase or password)
- Something that user owns (pass card, smartcard, digital certificates)
- Something that exists with user (fingerprint)

The security products authorize which resources the user may access and authorizes in what way the user may access them (read only, read and update). The security administrator is responsible for defining the system resources that need protecting (data, transactions, terminals, programs, and various other types of resources. the security product records these definitions in its database and then refers to this information to decide if a user should be permitted to access a system resource. Identification and authorization work together to implement the concepts of security.

Intrusion Detection Approches

Computers that are single or connected to networks are exposed to potentially damaging access by unauthorized

CERTIFICATE

OF ORGANIZING

Sri SAIRAM COLLEGE OF ENGINEERING

5th International Conference on Applied Science, Engineering and Technology (ICASET-18)

17th - 18th May 2018, Anekal, Bengaluru

IFERP
connecting engineers...developing research

This is to certify that..... Ms.P.Santhiya,AP/CSE .....

of..... Paavai Engineering College .....

has done ~~his~~/her excellence in Organizing the "5th International Conference on Applied Science Engineering and Technology (ICASET-18)" held on 17th and 18th May 2018 at Sri Sairam College of Engineering, Anekal, Bengaluru.

Mr.Rudra Bhanu Satpathy
Director, IFERP

Prof. V. Balaji
Program Chair
Professor & Head (MECH)
SSCE, Anekal

Prof. C. Sivaprakash
Program Chair
Professor & Head (ECE)
SSCE, Anekal

Dr.Y.Vijayakumar
Conference Chair
Principal,
SSCE, Anekal

CERTIFICATE

OF ORGANIZING

ICASET 2018

Sri SAIRAM COLLEGE OF ENGINEERING

5th International Conference on Applied Science, Engineering and Technology (ICASET-18)

17th - 18th May 2018, Anekal, Bengaluru

IFERP
connecting engineers...developing research

This is to certify that..... Ms.M.Sivaranjani, AP/CSE .....

of..... Paavai Engineering College .....

has done ~~his~~/her excellence in Organizing the "5th International Conference on Applied Science Engineering and Technology (ICASET-18)" held on 17th and 18th May 2018 at Sri Sairam College of Engineering, Anekal, Bengaluru.

Mr.Rudra Bhanu Satpathy
Director, IFERP

Prof. V. Balaji
Program Chair
Professor & Head (MECH)
SSCE, Anekal

Prof. C. Sivaprakash
Program Chair
Professor & Head (ECE)
SSCE, Anekal

Dr.Y.Vijayakumar
Conference Chair
Principal,
SSCE, Anekal

SELVAM COLLEGE OF TECHNOLOGY

PONNUSAMY NAGAR, SALEM ROAD(NH-44), NAMAKKAL - 637003, TAMILNADU.
Mob: 99420 99122, 99420 99109
Web: https://selvamtech.edu.in
Accredited by NAAC | UGC Recognized 2(f) Status | An ISO 9001:2015 Certified Institution
Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

4th INTERNATIONAL CONFERENCE ON ENGINEERING AND TECHNOLOGY

ICET – 2018

DEPARTMENTS OF BIO-TECH, CIVIL, CSE, ECE, EEE and MCA

in association with

The Institution of Engineers (India)
SALEM LOCAL CENTRE

Certificate of Appreciation

This is to certify that Mr/Ms/Mrs/Dr M. Sudha, Associate Professor of Department of ECE, Paavai Engineering College has participated and presented a paper entitled An effective analysis of ground water sensing using microcontroller in the 6th International Conference on Engineering and Technology (ICET - 2020) held on 04th & 05th March 2020 at Selvam College of Technology, Namakkal, organized by Departments of BIO-TECH, CIVIL, CSE, ECE, EEE and MCA in association with The Institution of Engineers (India), Salem Local Centre, Salem and International Journal of New Innovations in Engineering and Technology (IJNIET).

Mr.M.Ravichandran	Er.S.Loganathan	Er.D.Arulselvan	Dr.A.Natarajan
Convener	Hon.Secretary, IE(I)	Chairman, IE(I)	Prinicipal-SCT

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India

Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA

New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. S.Loganathan, Assistant Professor

of Paavai Engineering College

has attended/presented a paper entitled An Enhanced Method to Improve the Consistency of Paper Pulp in Paper Industries

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Conference Chair

Principal & General Chair

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India

Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA

New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

SSRG

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. R.Mohanapriya. Assistant Professor

of Paavai Engineering College

has attended/presented a paper entitled IoT Based Solid Waste Management System

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Conference Chair

Principal & General Chair

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. L.Punitha, Assistant Professor

of Paavai Engineering College

has attended/presented a paper entitled Automatic Ream Handling System for an effective storage in paper industry

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Conference Chair

Principal & General Chair

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. L.Punitha, Assistant Professor

of Paavai Engineering College

has attended/presented a paper entitled Automatic Ream Handling System for an effective storage in paper industry

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Conference Chair

Principal & General Chair

PSNA College of Engineering and Technology

Kothandaraman nagar, Dindigul-624622, Tamilnadu, India

(Approved by AICTE & Affiliated to Anna University, Chennai All UG programmes and MBA are accredited by NBA New Delhi & Accredited by NAAC With 'A' Grade)

Department of Computer Applications and Department of Computer Science & Engineering

In Association with

Seventh Sense Research Group

Chennai Division, Website: www.internationaljournalssrg.org

Certificate of Participation

This is to certify that Dr./Mr./Ms. **S. Kumarganesh, Assistant Professor**

of **Paavai Engineering College**

has attended/presented a paper entitled **Full Scale Testing and Performance Evaluation of Passive RFID system for positioning and personality mobility**

in the 2nd International Conference on Recent Trends in Engineering, Computers, Information Technology and Applications (ICRTECITA-2018) on 23rd March 2018.

Editor SSRG Foundation

Conference Chair

Principal & General Chair

ICRIETM 2018

Nandha Engineering College

(Autonomous) Erode - 52

IEEE

Certificate of Participation

This is to certify that

Prof. M. Sudha

Paavai Engineering College

has presented a paper on

"Grid Frequency Based Load Control Using PIC Microcontroller"

in

INTERNATIONAL CONFERENCE ON RECENT INNOVATIONS IN ENGINEERING, TECHNOLOGY AND MANAGEMENT

held on 23rd March 2018 @ Nandha Engineering College (Autonomous), Erode, Tamilnadu, India.

Chair Person Convener Principal

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.R. TIRUVASAGAM, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Enhanced Brain Tumor detection by RASM Approach using Neural Network

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. P. John Vivek, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Wireless based Multipurpose Robot for Military Application power station transformer

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. D. Tharini, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Determination of maritime boundary intruding boats using web based systems

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that C. Ganash, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Smart Agro Robot for Plant disease detection

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Satheeshkumar, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Automated Paper storage and Retrieved system using WLAN

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Smart billing system using LIFI

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. R.Mohanapriya, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled IR Based on Smart Metro Train System for Crowd Management

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. E.Sangeetha, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Industrial Atmospheric Affluence Screening using GSM Technology IoT Platform

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Dr. T. Loganayagi, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Transport Monitoring System

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. A.Kumaravel, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Measurement of mine environment parameters using wireless sensor network

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. A.Samundeeswari, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Fog Density Estimation and Image Defogging Based on Surrogate Model for an Optical Path

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. A.Samundeeswari, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Automatic Cylinder Booking and Security Applications using Embedded System

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. V.Sakthivel, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Automated Anesthetic Injector using Microcontroller

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Barcode based vehicle movement using arduino

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled GSM Based Automated Power Transmission Control for Remote and IoT

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Flying voice control quad copter robot with wireless video camera

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S. Kumarganesh, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Under Water Wireless Communication

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. P. John Vivek, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Wireless based Multipurpose Robot for Military Application power station transformer

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. D. Tharini, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Determination of maritime boundary intruding boats using web based systems

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

T. Komahya
ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that C. Ganash, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Smart Agro Robot for Plant disease detection

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Satheeshkumar, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Automated Paper storage and Retrieved system using WLAN

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Smart billing system using LIFI

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. R.Mohanapriya, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled IR Based on Smart Metro Train System for Crowd Management

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. E.Sangeetha, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Industrial Atmospheric Affluence Screening using GSM Technology IoT Platform

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Dr. T. Loganayagi, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Transport Monitoring System

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. A.Kumaravel, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Measurement of mine environment parameters using wireless sensor network

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Ms. A.Samundeeswari, Assistant Professor , Paavai Engineering College

Participated / Presented a paper entitled Fog Density Estimation and Image Defogging Based on Surrogate Model for an Optical Path

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. V.Sakthivel, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Automated Anesthetic Injector using Microcontroller

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Barcode based vehicle movement using arduino

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled GSM Based Automated Power Transmission Control for Remote and IoT

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.Vijayakumar, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Flying voice control quad copter robot with wireless video camera

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S. Kumarganesh, Associate Professor , Paavai Engineering College

Participated / Presented a paper entitled Under Water Wireless Communication

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on 'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018) held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

PRINCIPAL

80%

Post Processing Technique for Random Valued Impulse Noise Elimination

[1] R.Pushpavalli,[2]Dr.G.sivaradje [3] R.Bhuvaneshwari,
[1]Associate Professor,[2]Professor, [3]Assistant Professor
[1,2,3]Department of Electronics and Communication Engineering,

[1,3]Paavai Engineering College , Namakkal , India
[2] Pondicherry Engineering college,Puducherry,India

ABSTRACT-**A neural filtering technique is proposed in this paper for restoring the images extremely corrupted with random valued impulse noise. The proposed intelligent filter is carried out in two stages. In first stage the corrupted image is filtered by applying an asymmetric trimmed median filter. An asymmetric trimmed median filtered output image is suitably combined with a feed forward neural network in the second stage. The internal parameters of the feed forward neural network are adaptively optimized by training of three well known images. This is quite effective in eliminating random valued impulse noise. Simulation results show that the proposed filter is superior in terms of eliminating impulse noise as well as preserving edges and fine details of digital images and results are compared with other existing nonlinear filters. Keywords— Feed forward neural network, Impulse noise, Image restoration, Nonlinear filter.**

INTRODUCTION

The image corrupted by different types of noises is a frequently encountered problem in image acquisition and transmission. The noise comes from noisy sensors or channel transmission errors. The impulse noise (or salt and pepper noise) is caused by sharp, sudden disturbances in the image signal; its appearance is randomly scattered white or black (or both) pixels over the image. In the early stages, many filters had been investigated for noise elimination [1-3]. Unfortunately, a great majority of currently available noise filters cannot simultaneously satisfy both of these criteria. The existing filters either suppress the noise at the cost of reduced noise suppression performance. In order to address these issues, many neural networks have been investigated for image denoising.

In this paper, a novel structure is proposed to eliminate the impulse noise and preserves the edges and fine details of digital images; a feed forward neural architecture with back propagation learning algorithm is used and is referred as an Neural Filtering Technique for restoring digital images. The proposed intelligent filtering operation is carried out in two stages. In first stage the corrupted image is filtered by applying a special class of filtering technique. This filtered image output data sequence and noisy image data sequence are suitably combined with a feed forward neural (FFN) network in the second stage. The internal parameters of the feed forward neural network are adaptively optimized by training of the feed forward back propagation algorithm.

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. S.R.Thiruvasagam, Assistant Professor of Paavai Engineering College participated and presented a paper entitled An Efficient Detection and Segmentation of Brain Tumor using Artificial Neural Network in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

BRAIN STRESS LEVEL ANALYSING SYSTEM

[1] ARCHANA.V, [2]KOKILA.R, [3]KAVYA.S, [4]NANDHAKUMAR.G
[1,2,3]UG-Scholar, [4]Assistant Professor
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Analysis of stress level of an individual using the MATLAB software by considering the brain image obtained by MRI scan. MRI(Magnetic Resonance Imaging) is a type of scanning method which provides the detailed image of the human brain. Scientists discovered that the stress changes the brain structure, size and the connectivity. MATLAB(Matrix laboratory) provides image processing tools, standard algorithms(DWT,SPHIT) and specialized techniques which are helpful to process the MRI scan. The paper proposes the system which compares the patient's MRI image with the other MRI image and the datasheets which is already loaded in the software,will detect the stress level of the patient. It will be helpful to the physician to give proper medical guidance tothe patient.Keywords-stress, MATLAB, MRI, algorithm

1.INTRODUCTION:

Stress can be defined as a state of mental imbalance occurs due to the pressurized circumstance of an individual. Nowadays, every one of us getting stressed in our life. From this we could understand that stress is a part of day to day life. Stresscan lead to chronic disorders also.

Some of the commonly known stresses are acute stress, episodic acute stress and chronic stress. Acute stress is the general type of stress. If a person suffers from acute stress frequently, then it is called as the episodic stress. Chronic stress occurs from childhood experiences that remains painful forever. This type of stress is very dangerous to health. So, it is necessary to find the stress at the early stages.

Many people who suffers from stress for long undergoes psychologist counseling. The active participation of the patients seeking counseling is very important. But it could not be possible in all types of cases. Since, the person undergoes counseling could not able to express himself/herself frankly. Hence, it is necessary to move to thetechnical side to analyze the stress.

Stress changes the brain structure, size and neural connectivity. Stressed person's brain shape differs from the healthy person's shape. It is the key factor of this paper to detect the stress level. The main objective of the paper is to analyze the stress level of the patient through the MATLAB by considering thebrain image obtained by MRI scan. MATLAB provides various image processing tools and some predefined algorithms (DWT-Discrete Cosine Transform, SPHIT algorithms)are used to process the MRI scan. The efficiency, accuracy and cost of this technique is good comparing with the existing systems. This system will be more helpful for the patient to find the level of stress who stressed for a prolonged time. This paper will be expected to find a solution for it.

2. LITERATURE SURVEY:

2.1.EEG

EEG-Electroencephalogram is a machine which is used to acquire the activities of the

80%

Determination of Maritime Boundary Intruding Boats using Web Based Systems

[1]D.Tharini, [2]P.Poobalan, [3]J.Pradeep ,[4]R.Manikandan
[1]Assistant Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT: The main idea to design a border alert system is to safeguard the fishermen from being caught by SriLankans in coastal area. In this system we implement GPS and GSM technology .The GPS technology is to navigate or to track the current location of a boat. Whenever fishermen reaches the warning border, the border security forces will send notification to the LCD display in ship, so that fishermen will be alerted. Even if they dint stop the boat, we . The relay will cut off the power supply to the motor, so that boat will be automatically stopped. This system is mainly designed for Tamil fishermen.

I. INTRODUCTION

Sri Lanka and India seaside nations are isolated by their sea borders. In Tamil Nadu about 20,000 vessels make spinning in the Bay of Bengal. The main aim is to give a well equitable user friendly environment for Indian Fisherman to handle hazardous situation with the help of engine control. This paper comes with a consistent solution for this problem and protects the Indian fisherman from dangerous situation and being crossing the maritime boundary and save their life and improve the safety of fisherman. The system is designed by using GPS and GSM. A GPS route device is a device that precisely discovers natural area by getting data from GPS satellites. This device can track the GPS data every single time at whatever point the fisher man's cross the Indian border. It is a significant depression issue and encourages trouble in the both people and also their economic expenditures.

XII.

XIII. II. EXISTING SYSTEM

GPS and ZigBee protocol are combined to give a safety system which would also serve for security purposes. In the proposed system, we use the PIC micro controller which acts as the brain for the system. It is the one which compares the original location with the stored boundary values to take corresponding action during a trespassing situation. The sea is basically partitioned by the boundary values. The maritime boundary locations have been stored in the PIC micro controller . These boundary locations are compared with the original location obtained through GPS. Whenever there is a match, it implies that the boat has just reached the boundary line [3]. This information regarding the location of the boat is sensed by the PIC which then issues respective commands. As soon as the trespassing occurs, three events occur. Firstly, the motor of the boat is temporarily stopped and put in reverse motion for five

Plant Disease Diagnosis and Control using ARM Processor

[1]C.Ganesh, [2]M.Sangeetha, [3]Nithya, [4]G.Thilaga
[1]Assistant Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Agriculture is the back bone of India. But due to some causes losses occur in cultivation. The important cause is plant disease which reduces quality and quantity of product. Using agro-robot, we automatically cut the disease affected leaf and spray pesticides to control the further spreading of the disease. This method also reduces the working time of farmers and helps in preventing the losses of yield in the agriculture field. The system consists of an ARM processor, which is interfaced with the input and output module, the processor acts as an intermediate medium between both of them. So the processor can be termed as a control unit. The input module is nothing but a touch screen sensor which is placed on GLCD to have graphical image display, which takes the input from the user and provide the same to the processor. The processor also takes the responsibility to display the items on the graphical LCD at the receiving end the selected items will be displayed on GLCD with user rack number. The robot detect the diseased leaf automatically and using cutter, the leaf is removed then the pump value is sprays the pesticides to the affected plant.

Keywords—Agro robot, GLCD, Pesticides, ARM processor.

I. INTRODUCTION

Today India ranks second world wide in farm output. Agriculture is still the largest economic sector and plays a major role in socio- economic development of India. Farmers have large range of difference for selecting various acceptable crops and finding the suitable herbicides and pesticides for plant. Disease on plant leads to the convincing reduction in both the quality and productivity of agricultural products. The studies of plant disease refer to the studies of visually observable patterns on the plants.Plant disease diagnosis is an art as well as science. The diagnostic process (*i.e.*, recognition of symptoms and signs), is inherently visual and requires intuitive judgment as well as the use of scientific methods. Plant diseases reduce both quantity and quality of plant products. The prime objective of plant pathology is to prevent epidemic which are widespread outbreak of destructive diseases. Knowledge of different disease causing pathogen and their control is very essential in order to prevent the epidemics of the disease. Farmers are very

Wireless LAN Based AutomaticPaper Storage And Recover System

[1]S.Satheshkumar, [2]A.Vishnu Priya, [3]S.Yadhu Priya, [4]T.Yoga Shree
[1] Assistant Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Emergence of field buses, advance control systems and network communication has made drastic changes in data acquisition in industrial automation over years. The field bus is used as the universal element for network communication in industries . The field buses are capable of transmitting both analog and digital signals through a single interface bus by using superimposing technique .Unfortunately, this way of communication of signals requires more number of buses which occupy a fair amount of space in industries Instead of using field buses for interfacing, PROFIBUS and PROFINET technology is being used. PROFIBUS uses the bus topology. In this technology, the PROFIBUS central bus connect to a PROFINET and Ethernet system together for communication. This way of communication eliminates the need for bus cables and thus provides high flexibility and performance. In this project we are configuring PLC using PROFIBUS and PROFINET technology through engineering station or laptop. Configuration and Simulation of one digital input and one digital output will be done wirelessly in this project.

1. INTRODUCTION

PROFINET is the innovative, open standard for real-time industrial Ethernet in automation technology. The PROFINET Standard is specified and published by PI (PROFIBUS & PROFINET International).

network. PROFINET uses Ethernet standard as well as TCP, UDP and IP as protocols for communication, configuration and diagnosis.

The PROFINET standard defines three different performance levels which cover the various requirements from different

Automated Control System for CO2 Detection and Secure Human Life in Industry

[1]S.Gnanasekaran, [2]T.Arjun, [3]K.Dhanesh Vishnu , [4]B.Josepaul Vimal
[1]Assistant Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT: Monitoring systems are necessary for buildings to monitor the working environment. This paper describes the development of a wireless monitoring system which can be deployed in a building. The system measures carbon dioxide, carbon monoxide and temperature and LPG gas also. The system and function as an indoor air quality monitor independently.

Keywords—Environmental monitoring, smart building, wireless sensor network

I. INTRODUCTION

In currently significant emissions of industry and these are constantly on the rise due to human activity. It has been shown in some studies that pollution of air inside buildings is usually more outside. Efficient and reliable monitoring systems are necessary. With current developments in Wireless Sensor Network (WSN) - it has become feasible to deploy these systems in smart cities for a wide variety of monitoring applications, with special care needed for applications deployed in harsh environments where communication still has to be reliable, while also considering how to best secure data using inherent network mechanisms, This includes control systems and monitoring.

An environmental monitoring system allows building management to study pollutant levels in air, and to identify the polluting sources and to proper provision is implemented in the building. Common greenhouse pollutants include carbon dioxide (CO2) and carbon monoxide (CO). This type of gases is harmful to those who inhale it. An example of a consequence of such exposure is the sick building syndrome. The main goal of the system developed in this paper is to offer a low-cost system which is capable of monitoring air quality indoors. Since the comfort of building's occupants is important, this system also measures toxic gases and temperature.

The main challenge of this work was to develop a low-cost wireless sensor network (WSN) comprised of multiple nodes, where sensor nodes are powered by a battery, allowing a user to easily move sensor nodes to different locations of a building.

A Systematic Approach to Detect Human Lives by using PIR Sensors

[1]S.Vijayakumar, [2]B.Menakapriyadharshini, [3]C.Kaviya ,[4]I.Keerthiga
[1]Assistant Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT: Human Detection Robot is a robot that can detect thepresence of human; it sends the signal from the transmitter side to the receiver side and notifies it to the user by continuous buzz. Robot can move in all direction to increase the space of detection. The robot is automated to move in left, right, forward and backward directions based on the obstacles it encounters.

Keywords—*Infrared Signals, PIR sensor, Obstacle sensor, Radio Frequency Transmitter and Receiver, SONAR.*

I. INTRODUCTION

In these days there are lot of robberies happening, so we need more security. The security system commonly used is ordinary surveillance camera it provides visual images but the ordinary surveillance camera cannot notify the user instantly about unauthorized presence. To overcome robbery and to notify the user as quickly as possible we developed a robot that can detect human. As the robot can detect the human it is named Human Detection Robot.

This robot can be used in jewelry stores, banks, etc. to provide security after hours. It can also be used in earthquake areas to find victims and also in army to detect the opponent.

II. RELATED WORK

Detecting the presence of human can be different techniques and methodologies. One such technique is using a PIR sensor to find the direction of movement by the concepts of polarization. Another technique by using PIR sensors along with Symbolic Dynamic Filtering on seismic waves, from these seismic waves the features were extracted using SDF and checked if presence is of vehicle or animal/human. After classifying, it is further classified between human or animal along with their movement type (running, walking). There is a technique which focus on use of PIR sensors to detect human beings. Once the result obtained, the features can be extracted using

Seamless Handover Scheme for Traffic Optimization Based on OLSR Protocol

[1]S.Indhu, [2]R.Mohanapriya
[1]PG-Scholar, [2]Assistant Professor
[1,2]Department of Electronics and Communication Engineering
Paavai Engineering College , Namakkal , India

ABSTRACT: Mobile communication industry is growing rapidly with the increasing demand of users in the field of communication. For better communication, there are various networks such as Wi-Fi, which allows the user to stay on always connected and also provide seamless connectivity to the internet. But Wi-Fi has some limitations as its range is limited. Then WiMAX based on IEEE standards and LTE standardized by 3GPP, are two competing technologies, very technically similar which provides the speed of Wi-Fi. Thus by combining these three networks, a new wireless solution is created, which provide seamless roaming and better connectivity for mobile users. By using NS-3 tool, Handoff latency, packet loss, throughput and SNR for mobile users are analyzed. In this we use OLSR protocol, to access the performance of the inter system handover between Wi-Fi, WiMAX and LTE networks.The proposed scheme reduces traffic and increases the quality of communication.Keywords - Wi-Fi network, WiMAX network, LTE network, OLSR protocol.

I. INTRODUCTION

In the present time, key to provide mobile users with required QoS will be seamless handoff between homogenous or heterogeneous wireless access networks. Also the continuation of user application should not be compromised. Generally handover bring up the process of transferring an active call or data session from one cell in a cellular network to another. There are many reasons to perform handover between three cellular networks, and the most important reason is to deliver uninterrupted service to a user [12, 13]. There are some rules to initialize the handoff and it can be divided into two types:

1)Horizontal handoff – In this process the handoff occurs between the two cells having the same access technology or among the homogenous base stations. In this process there is no connection break between the two cells [11, 14].

2)Vertical handoff – In this process the handoff occur between the two cells having different technologies or when a node moves between various wireless access networks. In this case the access technologies as well as IP address change because as the node move from one network to another the technology also changes. But change of network interface and IP address are main concern of this process. In the Figure 1.1, a vertical handover occur among AP2 and 3G [12,15].

Remote Monitoring System Through Wireless Communication

[1] M.Prema,[2] M.Raja mathangi,[3] M.Rubika,[4] L.Punitha
[1,2,3]UG-Scholar,[4]Assistant Professor,
[1,2,3,4]Department of Electronics And Communication Engineering,
Paavai Engineering College, Namakkal, India

ABSTRACT: As continual improvement is a necessity for any company to grow, TNPL has been consistently improving the quality of the product, increasing the productivity, improving the safety for Men and Machine & reducing the cost by implementing the required level of Automation. It may also very difficult to find out the waste water reading and clorine content mixed in the water .so we are here to implement the remote monitoring system which is used to take the reading automatically and accurately.In TNPL it is very useful to find out the value of water which is used for preparing the paper and clorine is used for de-inking purpose.The values of clorine and water level should be noted in different places upto 2 kms from the factory this remote monitoring system may transfer the data through the wireless system with the help of high gain antenna.Here the micro controller and the sensor are used to measure the reading of water and clorine content .In this paper we have discussed about the design and implementation of water level and quality monitoring in wireless,automatic cost effective and reliable manner.it is completely automated with the help of micro controller.the installation cost is reduced with the help of wireless system.It is very useful and essential method used in the TNPL industries.it also reduce the time.Keywords: Micro controller,water level sensor ,clorine sensor,filter.

I.INTRODUCTION

Everything on the earth needs water to survive. Water is necessary to lead a industry and for the protection purpose.Decreasing water level is one of the key concern now a day.This problem mainly occurs due to wastage of water.so there is a need to control the wastage of water in industries.So monitoring and controlling of water in industries homes etc.. is very important.so to avoid such a problem of reduction of water level we have developed the automatic water level controller circuit using wifi.Monitoring of water quality in the industries is used to reduce the waterways pollution.formers can use these water for their cultivation purpose.the goal of this project is to design and manage a wireless sensor network(WSN)to help the quality monitor system.

II.LITERATURE REVIEW

In most recent years, the usage of internet and its applications has grown rapidly. As everyone's work is dependent on it, without

A Delay Reducing Multicast RoutingProtocol forWirelessSensor Networks

[1]A.kumaravel, [2]k.Anitha
[1]Assistant Professor, [2]PG-Scholar
[1,2]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Wireless Sensor networks consist of number of sensor nodes which are equipped with acoustic transceivers that empower them to communicate with each other to perform collaborative sensing tasks over a given area. Routing protocol for wireless sensor networks are of various kinds that cater to various different needs of researchers and scientists. Since each of these have a unique set of advantages and disadvantages, it becomes necessary for us to understand which of these might suit a specific scenario best. Certain problems are in this model the connectivity time packet sending time it could be loss between the data transmission. Our proposed model use A Delay Multicast routing protocol (DMRP) technique is much better than other protocols, because it has higher throughput. Multicast protocol is proposed for real-time multicast services in WSN. In our proposed system using algorithm is multicast routing algorithm. Through reducing the forwarding times for data packets in WSN, DMRP can not only decrease the energy consumption but also improve the throughput performance. To satisfy the maximum end-to-end delay deadline requirements for real-time services, DMRP adopts a mechanism with strict delay constraints.

1. INTRODUCTION

The delay of packet in a network is the time it takes the packet to reach the destination after it leaves the source. Network delay is an important design and performance characteristics of a computer network or telecommunication network. Multicasting is the ability of a communication network to accept a single message from an application and to send packets to multiple nodes at different locations. A Delay Multicast routing protocol (DMRP) technique is much better than other protocols, because it has higher throughput. Multicast protocol is proposed for real-time multicast services in WSN. Through reducing the forwarding times for data packets in WSN, DMRP can not only decrease the energy consumption but also improve the throughput performance. To satisfy the maximum end-to-end delay deadline requirements for real-time services, DMRP adopts a mechanism with strict delay constraints.

PREVENTION OF DOS ATTACK IN A WIRELESS NETWORK USING PARABOLIC ANTENNA

[1]M.Sudha, [2]V.Sindhuja
[1]Assistant Professor, [2]PG-Scholar
[1,2]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: In this paper the network performance parameters such as throughput, delivery ratio are enhanced. In our work, we propose a local flow packet marking(LFPM) and probabilistic packet marking(PPM) algorithm. Using this algorithms the secure data transmission over the wireless network is obtained through the malicious attack prevention . The parameters of data transmission is compared with existing system which shows that using parabolic antennas in wireless networks can increase the throughput capacity and it also decrease the delay of packets. Hence the challenges in existing method are identified and it is improved . The proposed algorithm reduces the packet delay even the maximum transmission takes place and this lead to the improvement in the network capacity. Usually, the antennas as base stations (parabolic) are the medium of communication in different fields and antennas are used to communicate in form of audio, video, graphically, as their importance in communication antennas are develop time to time according to the need.

1. INTRODUCTION

The most essential and basic parts of any electric framework is antenna, it joins the connections between the free space transmitter and the recipient antennas are the devices which covert rf signal or electrical signal into electromagnetic or wave signal and it is also used to receive electromagnetic signal and change it into electrical signal. Generally the antennas are the device used to send information in form of electromagnetic wave signal to communicate wireless or unguided way in antenna radiating resistance affect its efficiency, if it had a high radiating resistance the efficiency of that antenna will be high. Antennas are used for different application of different materials, structures for better communication. It also considered essential in discovering the properties of the system where antennas were used. Different systems have different kinds of antennas employed to them. In some systems directional properties of the antennas are designed around by operational characteristics of the system, whereas the antennas are simply used to transmit the electromagnetic energy in omni-directional in some other systems or in some systems it could be used for point to point communication where increase gain and lessened wave

Fog Density Estimation and Image Defogging Based On Surrogate Modeling for Optical Path

[1]S.Balaji, [2]D.Divakaran, [3]B.Hariprakash,[4]A.Samundeeswari
[1,2,3]UG-Scholar, [4] Associate Professor
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT: Since most of the vehicles are with digital cameras to capture the scenes and to record them. These cameras produces video output which is difficult to process at a time and produce fog free output to the drivers. Hence we are proposing a system that processes a video in frame by frame method i.e., image by image processing of a video. Our system is also capable of evaluating the amount of fog density present in the outer atmosphere. Based on the density of fog presence in the atmosphere, the fog is removed in the image using fog aware density evaluator. This system can be used in both day and night time. The visibility alterations during night time causes several accidents. Our system is also capable of adjusting light intensity of the opposite vehicles can be removed at the processing phase of the image. The calculation of vehicle distance for impact is also estimated by this system which avoids collision.

I. INTRODUCTION

Video output which is difficult to process at a time and produce fog free output to the drivers. Hence we are proposing a system that processes a video in frame by frame method i.e., image by image processing of a video. Our system is also capable of evaluating the amount of fog density present in the outer atmosphere. Based on the density of fog presence in the atmosphere, the fog is removed in the image using fog aware density evaluator. This system can be used in both day and night time. The visibility alteration during night time causes several accidents. Our system is also capable of adjusting light intensity of the opposite vehicles can be removed at the processing phase of the image. The calculation of vehicle distance for impact is also estimated by this system which avoids collision.

Fog mainly causes problems in vision applications such as video surveillance, remote sensing, defect recognition in the objects and navigation. Presence of outer atmospheric components such as aerosol and water droplets affects the visibility of the image due to defects such as absorption or scattering. Both absorption and scattering causes decrease in

GSM BASED AUTOMATED REMOTE CONTROLLED POWER TRANSMISSION WITH IOT PLATFORM

[1]Dr.S.Vijayakumar, [2]M.Krishnan, [3]s.Manikandan,[4]V.S.Rithik Srinivas
[1]Associate Professor, [2,3,4]UG-Scholar
[1,2,3,4]Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: Now a day's lots of problems occur in the powerDistribution line such as power theft,short circuit in transmission Lines, etc. to overcome these problems, we are using GSM technology with IoT platform. The objective this paper is to identify the fault in power transmission line and to identify all problems in power distribution in thermal power plants, the electricity is generated by using coal.The generated power is distributed in various station.\In distribution various problems occur. In any power theft or distributed power is increased or decreased in the transmission line that is identified by the microcontroller.The microcontroller identifies any fault in the transmission line; the trippers will be automatically tripped and Tripped and power supplies automatically stopped.In this situation, the microcontroller send the SMS through the GSM technology.The distributed power reading is will be displayed on the LCD display. The same message will be automatically update on the higher authority's websites like(AE,CE,etc) through IOT.By using GPRS,we can easily identify the location of the fault.By use of man power the problem will be rectified. After resolving the fault one command will be send from mobile who received the fault message .The power distribution states, when the tripper is turned one command receiver at a time. Otherwise the power distribution is not started. By using this method, the human life will be protected. By using this paper, we can predict the system, power theft will be identified and reduced manual work in the distribution.

1. INTRODUCTION

The objective of this paper is to identify fault in power transmission line and identify the power theft. To design and improve the power distribution system that we can introduce GSM technology with IOT platform and GPRS. In this paper, PIC microcontroller plays primary rule and GSM with IOT platform and GPRS plays secondary rule in this paper. In earlier paper if any problem occur in the transmission line that is very difficult to handle. By use of the online monitoring the accidents are reduced. The feedback circuit is used to identify how much power was transferred in the transmisscon line.

Novel Low Power Vlsi Technique For Network On Chip(Noc) UsingAdaptive Bus Encoding For Transition Reduction OnOff-Chip Buses

[1]G.Sangeetha, [2]Dr.S.Vijayakumar, [3]Dr.T.Rajasekeran
[1]PG Scholar, [2]Associate Professor, [3]Associate Professor
[1,2]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal, India
[3]Department of Mechatronics, *K.S.R College of Technology*

ABSTRACT: In this paper, a low-power data encoding scheme is proposed. In general, system-on chip based system will have many disadvantages in power-dissipation as well as clock rate wise, such transfer of the data from one system to another system in on-chip. At the same time, a higher operated system does not support the lower operated bus network for data transfer. Unlike system-on chip, network on- chip (NoC) has so many advantages for data transfer. It has a special feature to transfer the data in on-chip named as transitional encoder. Its operation is based on transitions of input data. The proposed system yields lower dynamic power dissipation due to the reduction of switching activity and coupling switching activity when compared to existing system. Even-though many factors which are based on power dissipation, the dynamic power dissipation is only considerable for reasonable advantage. Besides, the proposed system will be extended up-to interlink communication (data transfer from one to other) with help of routers and PEs which are performed by various operations.

I. INTRODUCTION

With the increase of speed and complexity of today's designs due to need for increased performance and the demand, there is significant increase in the power consumption of VLSI chips. Power optimization has become a serious concern for achieving high reliability and low packaging cost. A substantial fraction of the total energy consumption comes from system buses [1], [2], because the capacitance associated with an external pin is usually much larger (up to three orders of magnitude) than that of the internal nodes [3], [4]. Therefore, researchers haveexplored manytechniques for minimizing switching activity at external high capacitance off-chip buses at the expense of additional transitions on internal low capacitance nodes. Off-chip bus power minimization can be done byreducing the supply voltage, buscapacitance, or the total number of signal transitions in each bit line.

An Embedded System For Student's Database Management Using Biometric Technique

[1]Dr.P.Loganayagi, [2]K.Divyaa,[3]P.Haritha,[4]G.Kanimozhi
[1]Associate Professor, [2,3,4]UG-Scholar
Department of Electronics and Communication Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT: The traditional attendance system for students and staffs in our educational institutionsby maintain registering records isdifficult, time consuming task.An intelligent biometric system based on fingerprint scanner will replace the traditional boring attendance management system.The system can store the individual's fingerprint along with their database and the daily attendance will be stored in the memory module.The result will be send to the concerned authority and the absentees student's details will be automatically send to the parent's mobile phones through message.This smart attendance system is portable,cheap,reliable

1. INTRODUCTION

Biometric attendance system is one of the most successful applications of biometric technology.Biometric technique is the only simplest way to identify an individual[1].The fingerprint pattern should be different from each other,it can not be able to duplicate the fingerprint pattern.hence it plays a significant role in biometric system.

The fingerprint of the students are collected and stored in the database.When the time of daily fingerprint scanning,the actual pattern will be compared to the stored one.If they matches, the result is loaded as 'present' in the spread sheet.For the students who are all not enrol the finger print, the result is loaded as 'absent' for them in the memory module. When the fingerprints are not matched that student was not premised, a buzzer sound will be given for intimation.

For every time interval the students are supposed to give the fingerprint enrollment.The students who are absent will be informed to their parents through a message to their parent's mobile phones automatically at the end of the given time by using GSM technique.The entire process will be controlled by the ARDUINO BOARD.

Here, the datamust be transferred to computer in order to update thedatabase. But in our system, the database is automaticallyupdated and written on memory module.we haveproposed another system where the attendance system is send to parents via SMS. But in our system, the information will beupdated in a memory module.

AN EFFICIENT DETECTION AND SEGMENTATION OF BRAIN TUMOR USING ARTIFICIAL NEURAL NETWORK

K Sandhiya
PG Student
Department of ECE
Paavai Engineering College,
Namakkal
shinesandhiyaece@gmail.com

S Kumarganesh
Associate Professor,
Department of ECE
Paavai Engineering College,
Namakkal
skganesbece@gmail.com

K. Jayaram
Associate Professor & Head
Department of ECE
Sri Ranganathar Institute of
Engineering and Technology,
Coimbatore
kjayaram80@rediffmail.com

S.R.Thiruvasagam
Assistant Professor
Department of ECE
Paavai Engineering College,
Namakkal
thiruvasagamsr@gmail.com

***ABSTRACT*-A tumor is a mass of tissue that grows out of control of the regular forces that regulates growth Brain tumors are an abnormal and uncontrolled proliferation of cells. A secondary or metastatic brain tumor takes place when cancer cells extend to the brain from primary cancer in a different component of the body. The imaging plays a central role in the diagnosis of brain tumors. An efficient Adabooster algorithm is proposed for brain tumor detection based on digital image segmentation. A brain tumor may be considered among the most challenging tumors to treat, as it involves the organ which is not only in control of the body. Our method consists of twocentral processing of the novel robust active shape model (RASM) matching method with iteration utilized to segment the outline of the brain roughly. The initial position of the RASM is found using a rib cage detection method. Second, an optimal surface finding approach is utilized to adapt the initial segmentation result to the brain further. Left and right brain are segmented individually in Artificial Neural Network Approach for Brain Tumor Detection, which gave the edge pattern and segment of brain and brain tumor with an improved result.**

***Key-words*: RASM, Adabooster algorithm, rib cage detection, Artificial Neural Network**

I. INTRODUCTION

A. NEURAL NETWORK

Various kinds of neural-network architecture including multilayer preceptor (MLP) neural network, radial basis function (RBF) neural network, self-organizing map (SOM) neural network, and probabilistic neural network (PNN). A necessary statistical foundation in Bayesian estimation theory and its ease of training make PNN a useful tool for solving many classification problems. However, it requires an extensive neural network to analyze an entire image with the massive number of interconnected systems and its associated network size, the locations of pattern layer neurons as well as the value of the smoothing parameter.

B. ARTIFICIAL NEURAL NETWORKS (ANNS)

It has been developed for a wide range of applications such as function approximation, feature extraction, optimization, and classification. In particular, they have been

IOT BASED BEFOULING OVERSEE SYSTEMS

[1]K.Sathya, [2]R.Arangasamy
[1]UG Scholar, [2] Professor & Head
[1,2] Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT: Due to recent technologicaladvances the cost effective, reliable, scalable and accurate real-time air pollution monitoring system with IOT. The sensors are fire sensor, carbon dioxide sensor, carbon monoxide sensor and LPG sensor. The proposed system which is to develop an effective solution for pollution monitoring using Internet Of Things (IOT) on a real time basis namely real time wireless air pollution monitoring system. Commercially available discrete gas sensors for sensing concentration of gases like CO2, NO2, CO and O2 are calibrated using appropriate calibration technologies. Other parameters like temperature and humidity were also sensed along with gas concentrations to enable data analysis through data fusion techniques.

KEYWORDS: IOT Internet Of Things, CO2 ,O2 ,FTIR , industrial pollution , LPG sensor.

I. INTRODUCTION

Due to recent technological advances, the construction material for small and low cost sensors became technically and economically feasible. Even though, Industrialization increase the degree of automation at the same time it increases the pollution by releasing the unwanted parameters in environment especially in industrial areas. So there should be a system to monitor and assess the industrial pollution. Particular attention is given to factors which may affect human health and the health of the natural system itself. Industrial monitoring is the collection of information at different locations of industries and at regular intervals of time in order to provide the data which may be used to define current conditions. Due to the complexity of parameters large variations are found between different industries

IOT systems allow users to achieve deeper automation, analysis, and integration within a system. IOT utilizes existing and emerging technology for sensing, networking, and robotics. IOT exploits recent advances in software, falling hardware prices, and modern attitudes towards technology. Its new and advanced elements bring major changes in the delivery of products, goods, and services and the social, economic, and political impact of those change

II. OBJECTIVE OF THE STUDY

Electronic direction indicator using Embedded system

[1]V.Anjugam, [2]A. Jamuna , [3]S.Kaviya ,[4]Dr.R.Arangasamy
[1,2,3]UG-Scholar, [4]Head of the department
[1,2,3,4]Department of Electronics and communication Engineering,
Paavai Engineering College, Namakkal , India

ABSTRACT:

This project proposes an electronic direction indicator by using Bluetooth with dual input and it obtains single output. We are giving input through voice and it is further displayed on electronic direction indicator which is equipped with LED display interfaced with Arduino board with power supply of 12V. Arduino is a computer hardware and software company, project, and user community that designs and manufactures microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical world. The Arduino board regulated this power supply from 12V to 5V.The Android Development Tools (ADT) include an emulator to run an Android system. The emulator behaves like a real Android device (in most cases) and allows you to test your application without having a real device. This electronic direction indicator designed to indicate the direction. Instead of connecting voice recognizer, we are interfacing our mobile with device through Bluetooth for voice input. We should install an application in our mobile to give voice input. Applications are developed in the Java language using the Android software development kit (SDK). The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) plugin. This project is our experiment on real time application.

1. INTRODUCTION

Electronic direction indicator will be useful in schools, colleges, malls and also in roadways. We are designing this direction indicator to avoid the road maps. In modern world, everything is in our hand. We can go any cities and towns in the universe by using google map. We can calculate the time needed to go there. After reaching the particular place, it has many division within it. For example: we can reach an ABC (example) college by google map. After entering into the

PATH PLANNING OF SOLAR POWERED UNMANNED WIRELESS SENSOR MONITORING FOR PADDY FIELD ENVIRONMENT

[1]V.Kiruthika, [2]Dr.R.Arangasamy
[1]PG Scholar, [2]Professor & Head/ ECE
[1,2]Department of Electronics and Communication Engineering,
Paavai Engineering College, Namakkal, India

ABSTRACT: In this paper, a low-power data encoding scheme is proposed. In general, system-on chip based system will have many disadvantages in power-dissipation as well as clock rate wise, such transfer of the data from one system to another system in on-chip. At the same time, a higher operated system does not support the lower operated bus network for data transfer. Unlike system-on chip, network on- chip (NoC) has so many advantages for data transfer. It has a special feature to transfer the data in on-chip named as transitional encoder. Its operation is based on transitions of input data. The proposed system yields lower dynamic power dissipation due to the reduction of switching activity and coupling switching activity when compared to existing system. Even-though many factors which are based on power dissipation, the dynamic power dissipation is only considerable for reasonable advantage. Besides, the proposed system will be extended up-to interlink communication (data transfer from one to other) with help of routers and PEs which are performed by various operations

Keywords—*Precision agriculture, Microcontroller, Sensors, ZigBee,Solar panel.*

I. INTRODUCTION

The agricultural sector is one of the trademarks of India's economy. Agriculture plays a vital role in the development of the country. But in today's world, agricultural areas are getting reduced due to the laziness of humankind in irrigation. Apart from thatirrigation which is of current technology is time-consuming and also frivols away a significant amount of water. India has the surplus amount of water resources. This paper proposes an intelligent, dynamic and automated irrigation system for the crops. The system concentrates on controlling the irrigation process automatically using the device PIC controller. The automation part The system consists of soil moisture sensors which monitor the moisture content of the soil. The paper mainly focuses on conservation of water resources through an automated system. The system once installed has less maintenance cost and is easy to use. The significant leverage of the system is that the Irrigation process can be easily monitored and controlled at any time, anywhere by anyone having an internet connection.In the present era, one of the most significant issues looked by the world is water shortage and agribusiness being a requesting occupation expends a lot of water. Along these lines, a framework is required that utilizations

POWER GENERATION BY HUMAN ENERGY USING GYM CYCLE

[1]Dr. G.Balaji,[2]M. Poovarasan, [3]T.Raghu, [4]R.Vijay, [5]H.Yokeshwar,
[1]Professor, [2,3,4,5] UG-Scholars
[1,2,3,4,5]Department of Electrical and electronics Engineering ,
Paavai Engineering College,Namakkal, India

ABSTRACT-In order to reduce the usage of fossil fuels and to increase the usage of renewable energy our project focuses on reducing the usage of fossil fuels and to increase the renewable energy usually the utilization of fossil fuels as the energy source causes environment degradation since the fossil fuels are not completely utilized there remains certain amount of renewable energy source could be based on exercise equipment. The energy expended in a typical workout at the gym is usually wasted in the mechanics of the equipment.This project harnessed the mechanical energy of the machine and converted it into an electrical energy using a generator based system. Here the exercise equipment will be attached to a permanent magnet dc generator. This creates a dc voltage which will be fed into a circuit and then sent to a battery where it can be stored for future use. The stored energy then can be utilized by sending it to the inverter which converters a dc voltage into an AC voltage at the desired voltage and frequency depends on the appropriate transformers.

Keyword: Gymcycle,Inverter,Generator,Battery,Buck Boost converter

I. INTRODUCTION

In today's modern society, most people just flip a switch or push a button, and everything we depend on is readily available. Cell phones, computers, Television .heated water, lights, and so much more.are all the backbone of any Modern society's functionality. The electricity powering all these systems issomething most people rarely think about until the power is no longer available for use. The extensive system that allows for an instant and near constant supply of conditioned power is referred to as the "grid" .this grid is usually supported by government and or private in people who are left out are the ones in developing and third world counties. Grids are large expense, even for the wealthiest countries, and the amount of transmission losses in large grid would only compound the energy crisis.so a grid of energy for less fortunate countries is out of the question.

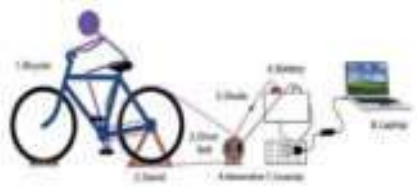


Figure 1 Pictorial Representation of Overall

Intelligence Surveillance Using Raspberry Pi

[1]M.Raja, [2]T.Kala Ranjani , [3]M.Deepa
[1]Assistant Professor, [2,3]UG-Scholar
[1,2,3] Department of Electrical and electronics Engineering ,
Paavai Engineering College, Namakkal, India

ABSTRACT: As an essential constituent of many associations' security and safety precedence, video surveillance has established its importance and benefits numerous times by providing immediate supervising of possessions, people, environment and property. This project deals with the design approach of an Embedded Real-Time Surveillance System Based Raspberry Pi SBC for intruder detection that reinforces surveillance technology to provide essential security to our life and associated control and alert operations. The proposed security solution hinges on our novel integration of cameras and motion detectors into web application. Raspberry Pi operates and controls motion detectors and video cameras for remote sensing and surveillance, streams live video and records it for future playback. This research is focused on developing a surveillance system that detects strangers and to response speedily by capturing and relaying images to owner based wireless module.

This Raspberry Pi based Smart Surveillance System presents the idea of monitoring a particular place in a remote area. The proposed solution offers a cost effective ubiquitous surveillance solution, efficient and easy to implement. This project will also present the idea of motion detection and tracking using image processing. This type of technology is of great importance when it comes to surveillance and security. Live video streams will therefore be used to show how objects can be detected then tracked. The detection and tracking process will be based on pixel threshold.

Keywords: Embedded System, Raspberry PI, Surveillance System, Motion Detection, tracking, video processing.

1. INTRODUCTION

The Raspberry Pi board and Arduino Uno Board are important elements. The surveillance is mostly based on the board operation. Raspberry Pi is credit-card sized computer, it functions almost as a computer. Arduino is a programmable board. In this type of surveillance system, the person who is stationary and also in moving condition can be located in that particular area can only view what is happening in that particular place.

The Arduino is important in this type of surveillance which is responsible for the wireless transmission and receiving purpose. The programming language such as JAVA and HTML is used in Arduino programming. The Raspberry Pi board is programed using Phyton Programming language.

The Raspberry Pi is used for surveillance and for login purpose. The transmission and receiving is generally done through transmitter. That is all components are interfaced together using ports. Raspberry Pi has several ports inbuild in it.

The system is securing that offers privacy on both sides since it is viewed by only one person. The other major advantage is that it is simple circuit the operating system used here is Raspbian OS. That is it can be installed so that image can be transmitted to the smartphone.

II.FUNCTIONAL DESCRIPTION

The functions of the various components are given below:

A. USB Camera:

USB Camera captures the image and sends it to the USB port of the Raspberry Pi board. The camera model used here is USB Camera model 2.0.

B. Raspberry Pi**:**

Raspberry pi is a small credit-card sized computer capable of performing various functionalities such as in surveillance systems, military applications, etc. The various

ANALYSIS ON A PV INSTELLED HOUSE POWER BY SOLAR ENERGY

[1]R.Johnnie Hepzeiba,[2]R.Anbunayagi,[3]B.Kiruthiga, [4]F.Lathipa.
[1],[2],[3]UG Students, Dept of EEE, Paavai Engineering College, Namakkal.
Dept of EEE, Paavai Engineering College, Namakkal.

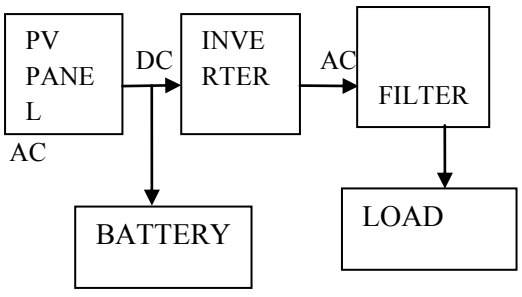
ABSTRACT

Global economy depends on oil, coal and natural gas will be completely phased out of existence in 2017. In terms of environmental Impact, solar power is a much more optimal resource than fossil fuels. In terms of reliable application, coal and natural gas have the edge. The ultimate way to compare solar energy to fossil fuels is by cost, where solar has quickly caught up with its non-renewable counter parts. When we compare the cost of solar energy vs. fossil fuels, we have to factor in the relative subsidies that are keeping costs low. And solar low cost trajectory is likely to continue: unlike oil, gas and coal, solar PV is a *technology* not a fuel, meaning that its costs will continue to fall every year as research continues and technology improves. Solar is easily installed on a rooftop surface or ground mount and harnesses an already-available resource (sunlight). By comparison, fossil fuel use requires the degradation of the earth as a means to a fuel's production. Many people are unaware that fossil fuels do not just create greenhouse gas emissions, the process of drilling also degrades and erodes the ground and pollutes water supply.The best way to compare solar energy and fossil fuels without subsidies is to examine global energy prices. Consider this: global coal prices have historically averaged $0.06 cents per kilowatt hour (kWh). Until the past decade, no alternative energy resource came close to rivaling that price. Fossil fuel steam averages around $0.05 cents/kWh and small scale natural gas can go as low as $0.03 cents/kWh.It's no wonder that the world was shocked in 2016 when a major commercial solar installation.

1.INTRODUCTION

When people think about alternative or renewable energy, the first image that comes to mind is often large blue or black solar panels on rooftops or portable highway signs that have a small panel attached .These solar panel**,** also knownphotovoltaic modules, convert sunlight into electricity, and they have been the backbone of renewable energy for decades. The photovoltaic effect was discovered over a hundred years ago! Yet a widespread of implementation of this technology has been very gradual. Only in very recent years has photovoltaicgained wide popularity has an alternative way to product electricity.In very basic terms, a solar panel is a device that will produce a flow of electricity under sunlight. This is electricity can be used to charge batteries and, with the aid of an inverter, It can power normal household electrical devices, or"loads". PV modules can also be used in the systems without batteries. Most solar panel are framed in aluminum, topped with tempered glass, and sealed by a waterproof backing.

BLOCK DIAGRAM



2. PV PANEL

A New Approach Of Cascaded Multilevel Inverter For Solar PV System

1Dr. K. Krishnamoorthi, [2]C.Arulkumar,[3]R.Sriram,[4]K.Vignesh
[1]Associate Professor, Sona College of Technology, Salem.
[2]Assistant Professor, [3,4]UG-Scholar
[2,3,4]Department of Electrical and electronics Engineering ,
Paavai Engineering College, Namakkal, India

Abstract-This paper presents a new generalized fifteen-level cascaded multilevel inverter with various multi carrier pulse width modulation (MC PWM) control strategies. The proposed inverter topology is asymmetrical topology which has two sets of units, that is it consists of 7 switches.MC PWM in proposed fifteen-level inverter with total voltage and current harmonic distortion is analyzed. The planned 15-level cascaded multilevel inverter is for dropping the total harmonic distortion. A small total harmonic distortion is the most important feature of these inverters. Multilevel inverter is used in this work with proposed control circuit to control the output voltage using sinusoidal pulse width modulation (SPWM).ANFIS controller is used to control this system to get the required output voltage. The results gained in this work prove the validity of the proposed controller of having an output voltage with minimum distortion. The switching pattern of semiconductor switches is used to get better the performance of multilevel inverter. This scheme decreases the switching loss and also increases the efficiency. To authorize the developed technique simulations are carried out through MATLAB/SIMULINK.

Keywords: Cascaded Multilevel Inverter, HarmonicDistortion,MATLAB,semiconductor switches, THD,SVPWM

I . INTRODUCTION

Multilevel inverters are becoming recent trends, because of its modularity and simplicity of control to generate particular number of levels. Multilevel inverters have a number of applications such as ups, in power grid, as solar inverter, induction heating and number of other applications. By increasing the number of dc voltage sources, a sinusoidal like waveform can be generated. Thus the total harmonic distortions decreases which has a great significance in power grid applications. A sine wave output is desirable because many electrical products are engineered to work best with a sine wave ac power source. The standard electric utility power attempts to provide a power source that is a good approximation of a sine wave.Multilevel inverters are commonly modulated by using multi-carrier pulse width modulation techniques such as phase-shifted multi-carrier modulation and level-shifted multi-carrier modulation. Amongst these, level-shifted multi-carrier modulations technique produces the best harmonic performance. This work studies a multilevel inverter with unequal DC sources using level shifting MCPWM technique. By applying this concept, harmonics

Advanced Metering and Decentralized Method Based Residential Demand Response Smart Grid System

[1]A. Udhaya Kumar M.E., [2]S.Sakthivel, [3]P.Vikraman,[4]S.Indhumathi, [4]K.Nithya

[1]Assistant Professor,[2,3,4,5] UG Scholar,

[2,3,4] Department of Electrical and electronics Engineering ,

Paavai Engineering College, Namakkal, India

ABSTRACT : The current state of development in demand response (DR) programs in smart grid systems, there have been great demands for automated energy scheduling for residential customers. Recently, energy scheduling in smart grids have focused on the minimization of electricity bills, the reduction of the peak demand, and the maximization of user convenience. Thus, a user convenience model is proposed under the consideration of user waiting times, which is a non-convex problem. Therefore, the non-convex is reformulated as convex to guarantee optimal solutions. Moreover, mathematical formulations for DR optimization are derived based on the reformulated convex problem. In addition, two types of pricing policies for electricity bills are designed in the mathematical formulations, i.e., real- time pricing policy and progressive policy. In real-time pricing policy, convexity is guaranteed whereas progressive policy can not guaranteed. To reduce energy demand with solar energy to the grid during peak load. The reduction of the peak demand and the maximization of user convenience .using Advanced metering with automated relay in power distribution.

Keywords : Smart Grid, Cloud Computing, Energy, Efficiency ,Relay, energy meter.

Analysis of Transient Stability and Short Circuit In Transmission Line Using ETAP

[1]R. MuthukumaR, [2]J. Noorun Nasirah, [3]K.Pachaiammal ,
[1]Assistant professor,[2,3]UG Scholar
[1,2,3]Department of Electrical and Electronics Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT- This paper presents the load flow and the transient stability analysis & short circuit of 6 bus and 9 bus system. Load flow studies are important for planning future expansion of power system as well as in determining the best operation of existing system and here one of the efficient methods of Adaptive Newton Raphson Method is used. The principal information obtained from the load flow analysis is the magnitude and phase angle of the voltage at each bus, and the real and reactive power flowing in each line. Single line diagram is model using Electrical Transient Analysis Program (ETAP) software. The transient stability analysis and short circuits is also obtained which can be used as a measure of Power Angle. Load Flow is not using MATLAB Software.

INTRODUCTION

POWER SYSTEM STABILITY

It is the ability of power system to return to its normal operating state after subjected to disturbances. The stability is influenced by the dynamics of generator rotor angle and power angle relationships. For analysis the power system stability is classified into two types.

1. Steady state stability
2. Transient stability

Steady state stability: Steady state stability is the ability of power system to regain its synchronism after small disturbance. The development of steady state stability is known as dynamic stability. The steady state stability limit for any synchronous machine is that when the power angle of the machine is less than 90 degrees.

Transient stability: Transient stability of power system is the ability to maintain synchronism when subject to large disturbance. Transient stability limit for synchronous machine is that when the power angle of the machine is less than 180 degrees.

It is a fast phenomenon, usually occurring within one second. For large disturbance, changes in angular disturbances may be so large as to cause the machine to fall out of step. In Transient stability studies the study period of interest is usually limited to 3 to 5 seconds following the disturbances, although it may

HYBRID RENEWABLE ENERGY USING BICYCLE

[1]S.Suganya, [2]K.Murali, [3]R.Privintharaj
[1]Assistant Professor, [2,3]UG-Scholar
[1,2,3,]Department Electrical and Electronics Engineering ,
Paavai Engineering College , Namakkal , India

ABSTRACT: Solar bicycle is an electric vehicle that provides that alternative by harnessing solar energy to charge the battery and thus provide required voltage to run the motor. Since India is blessed with nine months of sunny climate thus concept of solar bicycle is very friendly in India. Fuel using vehicle is producing lot of pollution but solar bicycle is not produce any other pollution. This solar bicycle is eco-friendly. There are many types of bicycle in the world such as normal bicycle that people need to paddle for it to move, motorized bicycle that uses fuel as its prime power and electric bicycle that can only be sufficient for an hour.Hybrid bicycle combines the use of solar energy as well as the dynamo that runs through pedal to charge the battery and to run the bicycle. Thus solar hybrid bicycle become a vital alternative to the fuel for automobile and thus itsmanufacturing is essential.In our project solar panel, battery and dynamo is used to run the bicycle. The distance will get increased by using the solar panel and dynamo. The performance of the system is analyzed practically.

Keywords: solar energy, Hub motor, Dynamo, sealed lead acid battery.

1. INTRODUCTION

The industrial society works only with the conventional energy sources like coal oil, natural gases or uranium. Meanwhile, we will have to problems with them. They produce several kinds of pollution. If we do not care atmospheric pollution, climate change or nuclear waste can endanger our living condition on the earth. After several years, the limited energy source will be exhausted, which will not guarantee our energy in the future. On theopposite side, the renewable energy sources use as the natural flows. These renewable energy sources only use small part of energy flow that is why they cannot damage the natural surroundings. One of these natural resources is solar power and several ways to use it. One of them is used to produce electricity. Firstly, we will explain how the photo voltaic technologies work, and we will show the implementation of the buildings and end up with the solar towers. PV cells convert sunlight directly into electricity without creating any air or water pollution. PV cells are made up of at least two layers of the semiconducting material. One layer has positive charge and another has negative. When the light enters the cell, some of the photons from the light are absorbed by the semiconducting atoms, free electrons from the

Smart Energy Conservation Using IOT

[1]S.Manikandan, [2]R.Guruguhan, [3]S.M.Keerthi Prasath, [4]
[1]Assistant Professor, [2,3,]UG-Scholar
[1,2,3]Department Electrical and Electronics Engineering ,
Paavai Engineering College , Namakkal , India

ABSTRACTPower utilities and government are facing a lot of problem with the increase in demand for the electricity. Nowadays electricity consumers (mainly in industry) are asking for better customer service, high accuracy in energy measurement, good & healthy power supply and timely data. After emerging a rapid increase in digital technology and computer communication system we had seen a plenty of revolution to replace old systems by newer ones.The main aim of the project is to minimize the queue at the electricity billing counters and to intimate the recharge amount (prepaid meter) automatically. The work system adopts totally a new concept of "prepaid electricity".The IoT technology is used so that the consumer would receive messages about the consumption of power (in watts) and if it reaches the minimum amount, it would automatically alert the customer to recharge. This technology holds good for all the electricity distribution companies, private communities, IT parks and self containing housing projects , The implementation of this project will help in better energy management, conservation of energy and also in doing away with the unnecessary hassles over incorrect building. It also plots live energy consumption curve monitoring using IoT. The automated prepaid billing system will keep track of the real time consumption and will leave little scope for disagreement on consumption and billing

.Keywords—embedded system coding,

I. INTRODUCTION

Aim

The aim of the project is to design and construct an intelligent prepaid energy meter that will be able to dictate any bypass by energy theft as well as to recharge the meter through GSM technology. OverviewElectric energy meters, the direct billing interface between utilities and consumers for long, have undergone several advancements in the last decade. The conventional electromechanical meters are being replaced by new electronic meters to improve accuracy in meter reading. Therefore, attempts are being made to automate the billing systems. Even though more accurate and faster meter readings have seen the light of day, bill payment is still based on an old procedure. They require the costumer to come to sales points of the electricity utility and buy electricity, where there are provided with vouchers (or tokens) that are then inserted back at home into the meter through a keypad. But the demand for computing power at all levels of electronic systems is driving advancements in semiconductor chip technology. The AMR and power quality monitoring systems manufacturers are taking advantage of these advances and integrating them into new meters and instruments. The

Design and Fabrication of Distributed Transformer by using Indian standards 2026

[1]K.Divya,[2]J.Mayuri,[3]R.Rakeshkumar,[4]G.Sundhar
[1,2,3,4]UG-Scholar,
Department of Electrical and Electronics Engineering,
Paavai Engineering College,Namakkal, India.

ABSTRACT: This project presents a design, fabrication and testing of transformer, one whose secondary voltage is less than its primary voltage. It is designed to reduce the voltage from the primary winding to the secondary winding . This kind of transformer "steps down" the voltage applied to it. As a step-down unit , the transformer converts high – voltage , low-current into low-voltage, high-current . The larger-gauge wire used in the secondary winding is necessary due to the increase in current. We are going to design transformer conductor, type of coil, connection, size of covered conductor, covering, size of covered conductor, transposition, turns per phase, number of coils per phase, turns per coil, number of layers, inter-layer-insulation, tapping design, inside diameter of coil, outside diameter of coil, winding length of coil, overall length of coil, approximate bare weight of conductor per transformer, approximate covered weight of conductor per transformer include leads. In a 63KVA, 11kv input as delta connection, 433V output as star connection, the entire construction and design followed by Indian standards-2026. After the entire construction the overall efficiency of the transformer will be about 95% after 10 years efficiency will reduced by 80%. After successful erection, pre-commissioning tests as per the checklist are carried out before commissioning. Maintenance of different accessories, including handling of oil and frequent inspection has to be done as per procedure.

Keywords-63KVA Transformer Design –Fabrication& Testing .

1.INTRODUCTION

A transformer is basically electromagnetic equipment based on the principles of faraday's law of electromagnetic induction. A transformer essentially consists of a magnetic core, build-up of insulated silicon cell lamination, upon which are wound set of coils suitably located with respected to each other and turned as primary and secondary windings. Such as combination may be used to derive a voltage higher or lower than what is immediately available. In the former case, the transformer is termed as "Step-up transformer". While in the later case it is known as a "Step-down transformer". The primary winding is that winding to which the supply voltage is applied. Irrespective of whether it is higher or lower voltage winding, the other winding to which the load is connected is termed as secondary winding.

PWM Control Techniques for Seven Level Inverter

[1]G.Umamaheswari,[2]V.Bharathi,[3]T.Gowsalya,[4]K.Rajeswari,
[5]S.Vijaya Shalini,
[1]Assistant Professor, [2,3,4,5]UG-Scholar
[1,2,3,4,5] Department of Electrical and electronics Engineering ,
Paavai Engineering College, Namakkal , India

ABSTRACT: The Multilevel inverters are extensively used in industrial power conversion systems both for utility and drive application. Multilevel inverter technologies are receiving extended attention recently in high voltage-high power applications, due to their ability to meet the increasing demand for power rating and power quality associated with reduced harmonic distortion and lower electromagnetic interference. In this work, total harmonic distortion (THD) minimization of the output voltage of multilevel inverters has discussed. An efficient approach to reducing the harmonic contents of the inverter's output voltage is THD minimization. In multilevel inverters with a fundamental frequency switching strategy, the switching angles can be picked so that the output THD is minimized. To obtain the optimum switching points, and optimization algorithm is implemented to the output-voltage THD.

INTRODUCTION

The term "multilevel inverter" was rooted years ago. Multilevel inverters offer various applications in voltage ranging from medium to high such as in renewable sources, industrial drives, laminators, blowers, fans, and conveyors. Small voltage step results in making the multilevel inverters withstand better voltage, fewer harmonics, high electromagnetic compatibility, reduced switching loss, and better power quality.

Cascaded multilevel inverters were developed in the initial stage. Later, diode-clamped MLI'S were developed followed by flying capacitor MLI'S. These three topologies utilize different mechanisms to produce the required output. The topology introduced first, that is, the CMLI, is simply series connection of H-bridges. The diode-clamped MLI uses series capacitor bank whereas, in flying capacitor MLI, floating capacitors are used in order to clamp the output voltage.

H-bridge inverters have isolation transformers, and then H Bridge cascaded MLIS were introduced to separate DC input sources. But they do not need either clamping a diode or flying capacitors. Absence of voltage imbalance is the main advantage of cascaded MLI. Fewer components are used in CMLI compared to diode-clamped and flying capacitor MLI.

Multilevel inverters are increasingly being considered for power electronics applications due to their ability to operate higher output voltage while producing lower levels of harmonic components in the switched output voltage since it has a greater availability of voltage levels [1]–[2]. Also, the output voltages can be filtered using smaller reactive components. Moreover, the switching frequencies of the devices can be reduced and more sinusoidal shaped output voltage

Multi-Stacked Buck-Boost Converters for Photovoltaic Modules under Partial Shading with Equalization Strategy

[1]Dr.S.Saravanan,[2]D.Boopathi,[3]K.Kesavan,[4]L.V.Lackshin, [5]R.Ranjith[4],
[6]P.Praveenkumar,
[1]Professor, [2]Assistant Professor, [3,4,5,6]UG-Scholar,
Department of Electrical and Electronics Engineering
[1]Muthayammal Engineering College, Namakkal.

[2,3,4,5,6]Paavai Engineering College, Namakkal.

ABSTRACT - Power processing converters and voltage equalizers have been proposed and used for photovoltaic (PV) string comprising multiple modules/substrings connected in series in order to preclude negative influences of partial shading in differential method. The single-switch voltage equalizer using multi-stacked buck-boost converters can significantly reduce the necessary switch count compared to that of conventional topologies, achieving simplified circuitry. However, multiple current sensors are necessary for this single-switch equalizer to effectively perform equalization. In this paper, a current sensor less equalization technique (ΔV-controlled equalization) is presented. The equalization strategy using the ΔV-controlled equalization is explained and discussed on the basis of comparison with current-controlled equalization strategies. Experimental equalization tests emulating partial-shading conditions were performed using the single-switch equalizer employing the ΔV-controlled equalization. Negative impacts of partial-shading were successfully precluded, demonstrating the efficacy of the proposed ΔV-controlled equalization strategy.

Keywords: Photovoltaic Modules, Multi-stacked, Sensors, and So on.

I . INTRODUCTION

Photovoltaic (PV) systems are usually composed of series–parallel arrangements of PV modules, each module consisting of a string of series-connected PV cells, as shown in Fig. 1(a). It is well known that mismatches due to manufacturing tolerances, partial shading, dirt, thermal gradients, or aging result

Analysis of Performance of PMSG and DFIG Based Wind Energy Conservation System

[1]S.Ramachandran [2]Dr.M.Ramasamy,[3]T.Kamalakannan,[4]G.Dinesh,

[5]K.RadhaKrishnan,[6]S.Sathiskumar,

[1]Assistant Professor,Department of EEE, Paavai Engineering College, Namakkal

[2]Associate Professor, Department of EEE, K.S.R College ofEngineering, Namakkal

[3,4,5,6]UG Scholar, Department of EEE, Paavai Engineering College, Namakkal

Abstract-Wind energy conversion systems are becoming popular in the research areas of renewable energy resources. The commonly used generators with wind energy conversion system (WECS) are Doubly Fed Induction Generator (DFIG), Wound Field Synchronous Generator (WFSG) and Permanent Magnet Synchronous Generator (PMSG). Recently PMSG and DFIG is gaining popularity as it has many advantages over conventional generators. Due to the variable nature of wind, PMSG cannot be directly coupled with the grid. An intermediate power electronic link needs to be provided between the generator and the grid. Many power electronic converter topologies are being used with PMSG. In this paper a review of recent and past grid connected converter topologies, used with PMSG and DFIG for wind power generation, has been presented. Interleaved converter, Maximum Power Point Tracking algorithm (MPPT).By using PMSG we get the output is440V and using DFIG we get the output is 415V.

Keywords-Multi-pole PMSG and DFIG, ANFICS controller, SEPIC converter, Z-source inverter, FUZZY controller, interleaved converter

1. INTRODUCTION

Burning of fossil fuels for generation of electrical energy has been considered as the major factor of global warming and environmental degradation. Owing to the benefits of wind power generation as a clean source of sustainable energy, it is becoming more and more popular with the passage of time. The global wind energy capacity has grown rapidly over the last decade and has become the fastest growing renewable energy technology. The average annual growth rate of wind energy generation capacity over the period 2006 to 2011 is about 26%. Many control strategies for wind generators have already been developed so as to efficiently utilize the wind power, which is variable in nature. The

Maximum Power Point Technique based Solar Charge Controller implemented Solar System

[1]Dr.K.Jagatheesan,[2]K.Gobinath, [3]S.Muthukrishnan, [4]S.Rajasekar, [5]R.Rajmohan
[1]Assistant Professor, [2,3,4,5]UG-Scholar
[2,3,4,5]Department of Electrical and Electronics Engineering,
Paavai Engineering College, Namakkal, India

[5]Assistant Professor, Department of EEE, Paavai Engineering College, Namakkal

Abstract - The basic needed of all human life require energy for all regular activities. In this connection renewable energy play major role because it is pollution free and lesser cost. The renewable energy sources are like wind, biomass geothermal, solar and hydro power. Within this, solar power is considered in this work and solar energy is converted into electrical energy for regular activities with help of Photovoltaic (PV) cells. The main issue in solar power is the output voltage of panel is varied with respect to solar radiation because of climate condition. So, output voltage of panel is varied time to time and input voltage given to the battery also varied. In order to solve this crisis charge controller is implemented in battery to regulate the output voltage of panel. In this work MPPT technique-based charge controller is proposed for output voltage regulation solar panel. The result clearly revels that proposed MPPT based charge controller improved solar energy utilization during different radiations conditions.

Key Words:Solar energy, Photovoltaic Cell, Maximum Power Point Tracking (MPPT), Pulse Width Modulation (PWM).

1.INTRODUCTION

Solar power is a conversion of energy from sunlight (Radiation) into electricity. Solar power changes with respect to the temperature. Concentrated solar power system use lenses or mirror and tracking system to focus a large area of sunlight into small beam. Photovoltaic cell convert light into electric current using photovoltaic effect [11]. The 392MW Ivanpah installation is the largest concentrating solar power plant in the world, located in the Mojave Desert in California.

Energy can be classified as two types,

1. Renewable energy sources
2. Non-Renewable energy sources.

1.1Renewable Energy

IMPLEMENTATION OF SOLAR TRACKING SYSTEM

[1]T.Nandagopal, [2]C.Subash,[3]M.Dineshkumar,[4]P.Kavinkumar,[5]R.Vignesh
[1]Assistant Professor, [2,3]UG-Scholar
[1,2,3,4,5] Department Electrical and Electronics Engineering ,
Paavai Engineering College, Namakkal, India

ABSTRACT: Energy crisis is the most important issue in today's world. Conventional energy resources are not only limited but also the prime culprit for environmental pollution. Renewable energy resources are getting priorities in the whole world to lessen the dependency on conventional resources. Solar energy is rapidly gaining the focus as an important means of expanding renewable energy uses. Solar cells those convert sun's energy into electrical energy are costly and inefficient. Different mechanisms are applied to increase the efficiency of the solar cell to reduce the cost. Solar tracking system is the most appropriate technology to enhance the efficiency of the solar cells by tracking the sun.A microcontroller based design methodology of an automatic solar tracker is presented in this paper. Light dependent resistors are used as the sensors of the solar tracker. The designed tracker has precise control mechanism which will provide three ways of controlling system. A small prototype of solar tracking system is also constructed to implement the design methodology presented here. Through tracking, there will be increased exposure of the panel to the sun, making it increased power output. The trackers can either be dual or single axis trackers.

Keywords:.LDR, Trackers and etc.

I . INTRODUCTION

Energy plays an integral role in economic growth. Moreover, it is considered as a significant national security concern. In recent decades, there has been a great demand for energy due to a spurt in economic activities. Future economic growth heavily depends on the long-term availability of energy that is affordable, accessible, and environmentally sustainable. Therefore, scientists are focusing their efforts on develop alternative energy sources that are clean and renewable. Among these alternative sources of energy, solar energy is one of the most viable candidates. However, solar energy has some drawbacks, such as low density, intermittent availability, and broad and varied spatial distribution. Scientists have to address these limitations of solar energy before it can be used as an effective utility.

The use of a dexterous, multi fingered hand for high-level object recognition tasks is considered. The paradigm is model-based recognition in which the objects are modeled and recovered as super quadratics, which are shown to have a number of important attributes that make them well suited for such a task. Experiments have been performed to recover the shape of objects using sparse contacts point data from the hand with promising results. The authors also propose an approach to using tactile data in conjunction with the dexterous hand to build a library of grasping and exploration primitives that

ANALYSIS ON A PV INSTALLED HOUSE POWER BY SOLAR ENERGY

R.Anbunayagi[1], B.Kiruthiga[2], F.Lathipa[3], RJohnnie Hepzeiba[4].

[1],[2],[3]UG Students, Dept of EEE, Paavai Engineering College, Namakkal.

[4]Assistant Professor, Dept of EEE, Paavai Engineering College, Namakkal.

ABSTRACT

The purpose of the project is to learn the principle and application of solar energy and to know the situation of solar energy in china and build a solar farm in china. Solar energy is most common collected by the using solar cells of course solar energy can be put to use to heat or light up a room by simply having wall placed windows and skylights. To use solar energy to power electrical applications solar cells are used. With the lack of energy source in the world, energy source is playing an important role in the development of Chinese economy. So the renewable energy source in the best choice for china. When should develop the applications of solar frame in china.

Solar energy in the sun's nuclear fusion reaction within the continuous energy generated. Earth orbit, the average solar radiation intensity is 1367kw/m2. Circumference of the earth's equator is 40000km, thus we can calculate the energy the earth gets is up to ones of the 173000TW. At sea level on the standard peak intensity is 1Kw/M2, roughly 102, 300TW of energy. Humans rely on solar energy to survive, including all others forms of renewable energy although the total amount of solar energy resources is 10,000times of the energy using by humans, but the solar energy density is low, and it is included by its location , season, which is a major problems of development and utilization of solar energy

1.INTRODUCTION

When people think about alternative or renewable energy, the first image that comes to mind is often large blue or black solar panels on rooftops or portable highway signs that have a small panel attached .These **solar panel,** also known as photovoltaic modules, convert sunlight into electricity, and they have been the backbone of renewable energy for decades. The photovoltaic effect was discovered over a hundred years ago! Yet

a widespread of implementation of this technology has been very gradual. Only in very recent years has photovoltaic gained wide popularity has an alternative way to product electricity.

In very basic terms, a solar panel is a device that will produce a flow of electricity under sunlight. This is electricity can be used to charge batteries and, with the aid of an inverter, It can power normal household electrical devices, or "loads". PV modules can also be used in the systems without batteries. Most solar panel are framed in aluminum, topped with tempered glass, and sealed by a waterproof backing. Sandwiched between the glasses and backing layers are the photo reactive cells themselves, often made of silicon. On the back of the module is a junction box that may or may not have two cables coming out of it. If the junction box has no cables, it can be opened to access the electrical terminals where wires can be attached to conduct generated electricity away from the modules. If there are cables already in place, the junction box is usually sealed and not user accessible. Sealed junction boxes are more common.

There are lots of ways to make use of solar electricity. One of the simplest is to charge small electronic devices, like cell phones and music players, with light weight, portable PV modules. Solar panels can be used individually or wired together to form a solar

Analysis of Hybrid Inverter Using Space Vector PWM Technique

[1]R.Priyanka, [2]A.Indhira, [3]S.Siva sankari ,[4]R.Sonmathi

[1]Assistant Professor, [2,3,4]UG-Scholar

[1,2,3,4]Department of Electrical and Electronics Engineering,

Paavai Engineering College, Namakkal, India

ABSTRACT: Inverters are widely used in the domestic and industrial environments. It performs as second line of source in case of power off from direct supply. Due to low capacity of the battery, the inverter dies out by energy utilized by heavy load appliance. Our project has designed to overcome from such issues by solar energy. Solar energy generates by PV panels with hybrid inverter batteries to store energy. In photovoltaic power generation system DC voltage variation leads to AC voltage distortion. The inverter generates the voltage up to 24V AC. By using hybrid inverter or multi-mode inverter (solar and storage system) it can simultaneously manage inputs from both solar panels and a battery bank, charging batteries with either solar panels or from direct supply. By using of space vector PWM based inverter it generate sinusoidal voltage and current. The main advantage of our project is giving high efficiency and low harmonic distortion in solar power generation.

1. INTRODUCTION

The economic development of a country depends on the strength of its infrastructure. Energy is one of the most important components of infrastructural facilities. The demand for energy is increasing day by day all over the world. Almost all countries of the world are in search of new sources of energy for meeting the increasing demand of energy. All the energy used on Earth comes from fission or fusion of atomic nuclei or from energy stored in the Earth. The problem with both fission and fusion is that they have dangerous radioactivity and side effects. Therefore, most of the generation of energy in our modern industrialized society is strongly depending on very limited non-renewable resources, particularly fossil fuels such as coal and crude oil. Non-renewableenergy resource is a resource that does not renew itself at a sufficient rate for sustainable economic extraction in meaningful human time-frames. Unfortunately these non-renewable forms of energy on earth are ultimately finite sources of energy. They have several disadvantages like time consuming to extract, contribution to climate, acid rain, dangerous for human life and not viable for future generations. Also burning of oil and coal in the process of conversion to electrical power is quite harmful to the environment. So that, it leads to a worldwide search for alternative renewable sources of energy.

Very much exploitation and research for new power was done not only in the area of nuclear power generation but also in the area of unlimited energy sources such as solar

SELECTIVE HARMONIC ELIMINATION FOR BLDC MOTOR USING FREQUENCY FILTER CIRCUIT

D.Murugesan[1], L.Padmapriya[2], S.Ratsaga[3],
[2]Assistant Professor, [3,4]UG-Scholar
[2,3,4]Department of Electrical and electronics Engineering ,
Paavai Engineering College, Namakkal, India

ABSTRACT - Selective harmonic elimination pulse width modulation (SHE-PWM) techniques offer a tight control over the harmonic spectrum of the current waveform generated by a drive system .Several algorithm are available and they solve resultant nonlinear transcendental equation , which describes SHE-PWM problem. The adaptive algorithms can perform better in eliminating unwanted lower order dominant current harmonics components present in PMBLDC motor drive last mean square (LMS) and recursive mean square (RMS) adaptive filtering algorithm to eliminated selective line current harmonics are to among the methods of adaptive noise cancelling in digital signal processing . This is proposed approached can eliminate an even or odd arbitrary number of harmonics without any penalties in switching frequency and also has suitability to implement even when the drive is partially loaded. The harmonic cancellation task in accomplished by generating reference signal with frequency that should be eliminated from the motor line current . The weights of adaptive filter are adjusted to totally eliminate the component with undesired frequency. In consequence, the proposed methodology also reduced the input current total harmonic distortion (THD).

I. INTRODUCTION

The brushless DC motor (BLDCM) is receiving wide attention for industrial application because of the high torque density, high efficiency and small size. Conventional controllers suffer from uncertain parameters the nonlinear of the BLDCM . The fuzzy control has been focus in the field of the control of the BLDCM .

However a systematic method for designing and tuning the fuzzy logic controller is not developed yet. In this paper auto-tuning method for fuzzy logic controller based on the genetic algorithm(GA) is presented. And the scheme is applied into the BLDCM control.

A speed controller has been designed successfully for closed loop operation of the BLDC motor so that the motor runs very closed to the reference speed . The simulated system has a fast response with small overshoot and zero steady state error.

II.BLDC MOTOR

Brushless Direct Current (BLDC) motors are one of the motor types rapidly gaining

Design and Analysis of CUK Converter based Wind Energy Conversion System

[1]C.Gowrishankar, [2]S.Boopath, [3] R.Gopinath

[1]Assistant Professor, [2,3]UG-Scholar

[1,2,3,]Department Electrical and Electronics Engineering ,

Paavai Engineering College, Namakkal, India

ABSTRACT:we represent a wind energy conversion system consisting of a wind turbine with a DC to DC power electronic Cuk converter which is used to convert DC voltage from one level to another level without using transformer. Cuk converter can step up or step down the voltage according to application, though Cuk converter has an inverted output but with suitable connection and also a converter with zero ripples, it can be used successfully. In the cuk converter, the conduction losses and switching losses are reduced since it offers capacitive isolation which defends against switch failure. So, the conversion efficiency of the converter is improved and the efficiency of the wind energy conversion system is increased. This paper introduces an approach to design Cuk converter for wind energy conversion system, the output of Cuk converter is track and measure continuously by varying pulse width modulating signal. This signal is used to control the duty cycle of the Cuk converter. The proposed system uses a PID controller to get the desired output voltage and deliver it to the load. Simulation results are provided to highlight the merits of the proposed circuit.

Keywords—Cuk Converter, Wind Energy Conversion System, Maximum Power Point Tracker, PID Controller.

1. INTRODUCTION

The alternative energy resources have recently attracted lot of interest because of increasing pollution level and depleting fossil fuels. Among renewable energy sources, wind energy generation has been noted as the most rapidly growing technology, being one of the most cost effective and environmental friendly means to generate electricity from renewable sources. In wind energy conversion systems the Variable-speed wind turbines (VSWTs)attract considerable interest around the world, which is one ofthe solutions with the highest potential to reduce wind energycost [1]. The various electrical machines used in wind energy conversion systems are doubly fed induction generator (DFIG), woundfield synchronous generator (WFSG) and permanent magneticsynchronous generator (PMSG). The intermittent renewable energy sources can be integrated with distribution network in various multi string topologies.

In variable speed wind turbine technologies, the permanent magnet

A NEW TOPOLOGY DC-DC CONVERSION FOR OFF-GRID SOLAR POWER SYSTEM

S.Chandraleka[1],M.Karthikeyan[2],A.Rathinam[3],C.Arul kumar[4]

[1,2]PG-Scholar

[3]Professor

[4] Associate Professor

[1,2,3,4] Department of Electrical and Electronics Engineering,

Paavai Engineering College, Namakkal, India.

Abstract: In this paper, a single-switch two-stage DC-DC conversion circuit is proposed for an off-grid solar power application. A photovoltaic (PV) panel powers the load and a storage unit (battery) via the proposed circuit. The battery is designed to balance the supply and the demand of power under different irradiation situations. Based on conventional cascaded DC-DCconverters, the proposed design is developed with the single switch technique reducing size, cost and power loss. The control scheme in this design is pulse width modulation (PWM) with pulse frequency modulation (PFM). ThePWM module is similar to conventional design except its ramp signal with a variable frequency is provided by a resettable integrator. As a result, the PWM and PFM modules regulate the two stages ofthe proposed circuit separately with the same switching control signal. In this paper, the modes of operation of the circuit are discussed as well as the control schemes. The design process is described along with the circuit analysis and comparisons with conventional design are made as well. A prototype has been built to verify the proposed circuit with simulation and experimental results.

Keywords: Single-switch technique, photovoltaic power system, off-grid solar system, DC-DC conversion, resettable integrator, pulse frequency modulation (PWM), pulse width modulation (PFM).

XXI.

DESIGN AND CONTROL OF A HIGH POWER LOW LOSSES DC-DC CONVERTER FOR MINING APPLICATIONS

[1]A.Rathinam, [2]A.Sindhuja ,[3]M.Karthik
[1]Asso.professor, [2,3,]PG-Scholar
[1,2,3]Department of Electrical and Electronics Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT - A new design procedure for a bidirectional DC-DC LCL converter for various applications, including mobile mining equipment. This type of DC-DC converters employs two DC/AC converters and a passive LCL filter instead of a traditional high-frequency transformer. DC systems have been known for decades as an effective way of bulk power delivery. Since HVDC transmission has been playing an important role in power systems, interconnecting two separate AC networks and connecting large off-shore wind farms to the main power grid. Recent developments in power electronic technologies have resulted in expanding of the DC system applications into more areas, including aircraft, spacecraft, data and telecommunication centers, as well as traction and shipboard power networks. The main advantages of DC systems include smaller footprint, higher power transfer, higher efficiency, reduced voltage drop, better stability and longer transmission distances, compared to their AC counterparts of similar sizes and costs.

Keyword: DC Bus, Switching Devices, LCL Converter, Mining Applications, Inverter, R load, Inductive load.

I.INTRODUCTION

Most electricity production by solar energy is separated into two forms. First one is solar rooftop, which is small electricity production and can manage unused space on the rooftop for gaining benefits. This configuration generates less energy than grid system, but if there are many solar rooftops in the area, it can generate much energy and reduce electrical power consumption in the transmission line. Another form is the solar farm, which is large electricity production and generates huge energy. Both forms send electrical power to the transmissionline, so it is required to control electrical power quality andstability in power transmission system. Regarding powerquality, the significant factor is harmonics that are generated bythe solar system, and then the generated power will be sent tocustomers in the area.Some research papers in the field of harmonics from PV system and the effect of inverter have been reviewed. Introduced a way to forecast impedance network quasi-resonance between HVDC Inverters and the grid analyzed the limitations of the standard resonant current control operating under abnormal grid conditions and introduced a control scheme from a three-phase PV inverter. The complete design had been validated with experimental results and good agreement with the theoretical analysis of the overall system was observed. In a harmonic impedance synthesis technique for voltage-controlled distributed generation inverters to damp harmonic voltage distortion on a distribution network was investigated. Solution eliminates the bulky electrolytic capacitors while smaller amount of AC capacitors were needed to compare with the buck-type AC–AC converters that continuous grid-side current was obtained, which implied that no extra grid-side filters were required The comparative analysis, simulations, and experiments indicated that the proposed strategy greatly improved the ability of the inverter to reject the current harmonics induced by multi-harmonic sources as long as the grid feed forward and the resonant control were complementary. The harmonics in PV system are presently a concerned problem of power system because they affect the electric equipment of the end users and stability of the transmission system. Therefore, in this study, different configurations by connecting to PV system and loads are carried out to reveal the real behavior of the harmonics in the considered system.

AN MULTI-SOURCE ENERGY INTEGRATION SYSTEM USING FUZZY LOGIC CONTROLLER WITH GRID CONNECTED SYSTEM

[1]Dr.G.Balaji, [2]K.K.Poongodi ,[3]C.Ilakkiya
[1]Head of the department, [2]Asso.professor,[3]PG-Scholar
[1,2,3,4]Department of Electrical and Electronics Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT - Renewable energy resources (RES) in distribution frameworks since adding up to energy request, and it is constrained. In this paper presents a control methodology of three-stage network interfacing inverter use the renewable energy Source with the matrix. The Renewable Energy Source might be Solar, or Wind relies upon distribution framework voltage level. Every one of these works of the inverter is done either exclusively or joined to conquer the uneven impacts of a wide range of straight, non-direct, adjust or unbalance loads at the distribution level. An intelligent energy management system (IEMS) for maintaining the energy sustainability in renewable energy systems (RES) is introduced here. Then the additional power requirement is supplied by either wind or PV or both relying on the accessibility of these power sources. The choice about working these frameworks is given by an IEMS with fluffy rationale chief proposed in this investigation. Utilizing the created and required power data from the breeze/PV and load sides, the fluffy thinking based IEMS decides the measure of energy to be provided from each of the two sources. Also, the IEMS tracks the greatest power working purpose of the breeze energy framework.

Keyword - Wind Turbine, Solar, Dc/Dc Converter, Fuzzy, Dc Bus, Load.

I. INTRODUCTION

In this day expanding requirement for energy and the components, for example, expanding energy costs, constrained reserves, and natural contamination, drives the renewable energy to be the most alluring energy source. Since these sources have the unlimited supply and they do not cause environmental pollution, they are studied extensively lately and utilized more and more every day. Governments put in new legislation and feed-in-tariffs to encourage the investors to install new renewable energy utilization sites, and studies on this topic aresupported by many foundations. Renewable energy sources consist of solar energy, wind energy, geothermal energy, and wave energy which are considered to be endless since they exist naturally and theyAlways renewable themselves. It is one of the vital themes that researchers and researcher take a shot at to acquire energy from these sources and utilize this energy by changing it into the type of electrical energy. Energy Integration is undoubtedly the engine of the world economy and consumes large amounts of resources. In recent years, some environmental problems caused by manufacturing have rapidly become more severe. Statistical data show that industry currently consumes approximately of the total energy used in the world each which is more than any other sector. An extremely energy-intensive industrial pattern that was responsible for total energy consumption. Higher energy prices, stricter environmental regulations, and consumer perceptions of energy-saving products have led to an increasing interest in improving energy efficiency. Thus, a large potential for industrial energy efficiency remains unexploited, and energy management systems (EMSs) play an important role in reducing energy waste and optimizing production processes. Currently, EMSs have been successfully applied in several energy-intensive industries, such as the steel, paper and petrochemical industries. However, the characteristics of many energy-efficient technologies complicate the implementation of such systems. Diverse equipment that is considered by EMSs can generate large amounts of data using different protocols, resulting in a lack of interconnectivity and interoperability between industrial EMSs. Given this requirement, a common

ANALYSIS OF POWER LINE DISTRIBUTION BUS SYSTEM INCREASE RELIABILITY OF THE GRID

[1]Dr.G.Balaji, [2]R.Satheeshkumar ,[3]M.Maharaja
[1]Head of the Department, [2]Asso.professor,[3]PG-Scholar
[1,2,3,]Department of Electrical and Electronics Engineering,
Paavai Engineering College , Namakkal , India

ABSTRACT - The power stream and voltage on the lines should be controlled remembering the real objective to keep up the relentless secure activity of the framework. Power system automation, as in smart grids Load shedding and other load control techniques such as demand response mechanisms to manage a power system.As critical grid events often require real-time recognition and real time response. A smart grid uses IP-based, open standard, intelligent communication to measure real-time functions such as system stability, equipment performance, outages and demand response events. Synchrony pharos estimation innovation is precise and constant checking with the high determination of genuine framework conditions in the wide zone. The proposed strategies have been checked, analyzed and examined utilizing mat lab software, discern of buses in the whole system for optimal placement of Phasor Measurement unit.

Keyword: Generating station, Transmission line, PMU Measurement, Sub-Station.**I. INTRODUCTION**

Phasor Measurement Units (PMUs) become more and more imported and attractive to power engineers because they can provide synchronized measurements of real-time phasor of voltage and currents. As the state estimator assumes an imperative part in the security of energy framework to improve state estimation in an issue should have been explained. Be that as it may, presenting the PMUs in control framework ,conceivable to gauge the ongoing phasors of voltages and streams at generally scattered areas as for a global positioning system(GPS) clock The goal of the present work is to locate the base number of PMUs to make the framework topologically discernible, and additionally the ideal areas of this PMUs. In late year, there has been a noteworthy research movement on the issue of finding the base number of PMUs and their ideal areas. The authors use a simulated annealing technique in their graph-theoretic procedure to find the optimal PMU locations. The authors use integer programming to determine the minimum number of PMUs.The method is compared with other methods. Another depth-first search) method is proposed. The calculation is computationally quicker. However, the arrangement isn't ideal because the enhancement paradigm is hardened. A modified depth-first approach is a minimum spanning tree (MST) method. The technique is speedier and more helpful than traditional observe ability analysis methods using complicated matrix analysis because it manipulates integer numbers. The method on meter placement to maximize topological observe ability is presented The GA method suggested solves the OPP problem using different PMU placement criteria, such as the absence of critical measurements and critical sets from the system, maximum quantity of measurements received as compared to the initial one, maximum accuracy of estimates, minimum cost of PMU placement, and transformation of the network graph into tree. In reference, the application of the immune genetic algorithm (IGA) method to the OPP problem is presented. Utilization of the local and prior knowledge associated with the considered problem is the main idea behind IGA. A BPSO calculation, with the goal of least PMU establishment costs, is presented A hybrid algorithm based on BPSO and the immune mechanism is introduced It gives an expedient and general breaking down technique for control organize topology perception given the properties of PMU and topological structure data of

FPGA IMPLEMENTATION OF AREA EFFICIENT AND HIGH SPEED FIR FILTER

[1]T.Karthic, [2]N.Thilaga

[3]Assistant Professor, [1,2]PG-Scholar

[1,2,3,4]DepartmentOf Electrical and ElectronicsEngineering,

Paavai Engineering College ,Namakkal , India

ABSTRACT:FPGA arrived in 1984 an alternative to programmable logic devices (PLDs) and ASICs. FPGA offers the significance of the benefits of being readily programmable logic gate. In the signal processing, the functions of a filter is to be remove unwanted parts of a signal, such as the random noise, or to be extract useful parts of signal, such as components lying within the certain frequency range.

KEYWORD: Filter, Field programming Gate Array

I.INTRODUCTION

Ansome analog filter which uses the analog electronics circuit made from components such as the resistors and the capacitors which is to be produce the required filtering effects. A digital filter which uses a digital processor is to be perform numerical calculations and on sampled values of the signal. In the signal processing, there are many instances in which an input signals to be a system contains unnecessary content or the additional noise which can be degrade the quality of desired portion.

XXIV.

XXV. II.METHEDOLOGY

II.A Field Programmable Gate Array (FPGA)

FPGA which offers all of the features which will be needed to implement most of the complex designs. Clock management isthe facilitation by on-chip PLL (phase-locked loop) or DLL (delay-locked loop) circuitry. Dedicated memory blocks which can be configured as the basic single-port RAMs, ROMs, FIFOs, or CAMs.

Nowadays FPGA's are the system building resources that may high-speed serial input/output, arithmetic modules, embedded processors, and very large

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ ANAND. K of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled INVESTIGATION OF THE IMPART BEHAVIOR OF AUTOMOTIVE BUMPER UNDER CRASH CONDITIONS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ MANIGANDAN. N of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled DESIGN AND FABRICATION OF ROTAVATOR BLADE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Computational Analysis of Internal Cooling Passage of Gas Turbine Using Tilted Divider Wall

Sethunathan.P [1], Vinothkumar.M[2], Maniraj.S[3], Thuyavan.R [4]
[1] Assistant Professor, Department of Aeronautical, Paavai Engineering College,Pachal, Namakkal, Tamilnadu.
[2,3,4] Assistant Professor, Department of Mechanical, Paavai Engineering College,Pachal, Namakkal, Tamilnadu.

ABSTRACT

In this present work, we have decided to design and analysis of Gas turbine internal cooling passage using Computational Fluid Dynamics. Already there are various types of cooling methods are used in turbine blades. One of the most commonly used methods is internal cooling of the turbine blades. In that trailing edge is an important role to cool but the difficult is to design the cooling passage. So we decided to design and analysis of two pass trapezoidal smooth channel with different inlet and outlet width and 88º tilted divider wall which is separate the two channel. The L shape and opening in the L shape divider wall is introduced to cool the trailing edge .The advantage of this channel reduces the temperature rate in the trailing edge and also the channel by using the tilted divider wall. In the first three cases inlet width is less than that of outlet width and the next three cases inlet width is greater than that of outlet width. This model is designed and analyzed by using ANSYS FLUENT and the flow testing analyzed at the range of Reynolds number 10 X 10^5. The flow is considered incompressible, three dimensional, turbulent and steady with constant thermodynamic properties. When analysis the different cases we concluded that the design of L shape divider wall with the inlet width is greater than that of outlet width is more efficient and reduce the temperature rate.

Key words: Gas turbine, Two-pass channel with divider wall, Heat transfer, Computational Fluid Dynamics.

I. INTRODUCTION

A.Trailing Edge Cooling

The cooling of a complete blade is a difficult task, but the most difficult region is the trailing edge. The treatment is difficult not only due to heat transfer problems but also due to the aerodynamic losses. The trailing edge needs cooling but at the same time structural rigidity. Trailing edge cooling designs are tradeoffs between aerodynamic efficiency and heat transfer effectiveness. The aerodynamic losses associated with the trailing edge enforce the requirement of a narrow and smooth trailing edge. Thinning of the trailing edge of the blade reduces the intensity of edge wake. This results in reduction of energy losses for mixing. This low thickness of the trailing edge results in the limitation of the magnitude of the conduction to internal cooling passage as well as the size of the passage.

B. Conjugate Heat Transfer

In case of gas turbine blades, the temperature gradient within the solid body and temperatures at the surface of the blade is important to obtain in order to design the cooling configuration which is useful for minimizing the maximum temperatures as well as the gradients. One method to obtain it is to perform a decoupled analysis of the blade external flow, the blade internal flow and the analysis of the heat conduction in the blade itself. This can be done by assuming a constant wall temperature and calculating heat transfer coefficients. These heat transfer coefficients can then be used to calculate the wall temperatures of the solid. The new wall temperatures can then be used to correct the heat transfer coefficients value. Several iterations may be required to get a converged solution. Alternatively, a conjugate heat transfer approach can be used, which refers to the interaction between the conduction

CFD Analysis of SI Engine by Effective Cooling Method

Thuyavan.R[1], Vinothkumar.M[2], Maniraj.S[3], Sethunathan.P[4]
[1,2,3] Assistant Professor, Department of Mechanical, Paavai Engineering College,Pachal, Namakkal, Tamilnadu.
[4] Assistant Professor, Department of Aeronautical, Paavai Engineering College,Pachal, Namakkal, Tamilnadu.
E-mail: [1]thuyavanrajupec@paavai.edu.in

ABSTRACT.

Normal air cooling method provided in engine is less efficient. Because of the low heat capacity of air so after engine getting over heated suffer from hot spots which reduces power, increases emissions and shortens their life. When a localized hot spot forms, it causes the surrounding metal to swell excessively. This, in turn, can crush the head gasket causing the gasket to leak, erode and eventually burn through. Hot spots also create added stress in the head itself, which may cause the head to warp and crack. So in order to increase engine life we need to give additional cooling. The objective of the project is to develop an air channel setup for single cylinder head spark-ignition engine with which the heat transfer due to fuel combustion could be increased.

Keywords—Air Cooling, IC Engine, CFD, Air Channel, Heat transfer, channel cooling &CFD Analysis.

1. INTRODUCTION

An IC engine is one in which the heat transfer to the working fluid occurs within the engine itself, usually by the combustion of fuel with the oxygen of air. Internal combustion engines use heat to convert the energy of fuel to power. In IC engine all of the fuel energy is converted to power. And after converting the heat to power Excess heat must be removed cycle. The heat is moved to the atmosphere by means of fluids water and air. In engines, heat is moved to the atmosphere by fluids low temperature. Due to combustion process Engine temperature is not consistent throughout the power. If excess heat is not removed, engine components fail due to excessive temperature. Heat moves from areas of high temperature to areas of low temperature as shown in below area. In Engine When fuel is oxidized (burned) heat is produced. Additional heat is also generated by friction between the moving parts. Only approximately 30% of the energy released is converted into useful work. The remaining 70% must be removed from the engine to prevent the parts from melting.

1. 1 Overall Heat Transfer for S I Engine

Peak burned gas temperature in engine is near about 2500 K and during Combustion period heat fluxes may reach to 10 MW/m2, during other part of the cycle it is essentially zero. The maximum metal temperature for the inside of the combustion chamber is much lower values due to cracking on materials (aluminum alloys 673K) to prevent deterioration of lubrication oil (keep below 453K). Also Spark plugs and valves must be kept cool to avoid knock and pre ignition problems. Basically we should maintain the combustion temperature to achieve high heat transfer reduce the engine efficiency. Extended fins are well known for enhancing the heat transfer in I C engine. However liquid-cooled system is better than air cooled system but in S I engine air cooled system is better than liquid cooled and simpler also. Therefore it is very important for air cooling system to utilize extended surface fins effectively to obtain uniform temperature in cylinder periphery.

Society of Engineers & Technicians

Kuala Lumpur, Malaysia

Regd PPM-019-14-21052012

2017 International Convention on Dissemination of
Innovative Research in Science
Engineering Technology &
Management Applications
Kuala Lumpur, Malaysia
11th - 12th March 2017

Certificate of International Convention Participation

Awarded to

S.T. Kumaravel

Has participated & presented a Research Paper
Entitled

Enhancement of fuel properties of tyre oil extracted from waste tire

S.T.Kumaravel[a,*], A.Murugesan [b], C.Vijayakumar [c], A.Kumaravel [b]

[a]Department of Mechanical Engineering, Paavai Engineering College, Tamilnadu, India, 637 018.
[b]Department of Mechanical Engineering, K.S.Rangasamy College of Technology, Tamilnadu, India,637 215.
[c]Department of Mechatronics Engineering, K.S.Rangasamy College of Technology, Tamilnadu, India,637 215.
Assistant Professor,Department of Mechanical Engineering,Paavai Engineering College, Namakkal Dist. Tamilnadu

Published in the 2017 International Convention on Dissemination of Innovative Research
In Science, Engineering Technology & Management Applications
Organized by Malaysia Editorial Board Committee
Journal of Engineering Technological Research (ISSN: 2229-9262)
Journal of Engineering Technology & Management Science (ISSN: 2229-9254)
In Association with Society of Professional Engineers (India)
On 11th -12th March 2017, Kuala Lumpur, Malaysia

Ir. Ahmad Zaidi Bin Abdullah PEng
Executive Committee & Consulting Editor
MIEM, MIEEE, ASEAN Eng, CEM, MGBC

Ir. K.Rajendran, B.Tech., M.I.Engg. (Aust)
Executive Committee & Chief Editor
AMIET (UK), AMSAE (USA), FISET, FISAeroE
Eng.Tech (UK), FISME, PEng., FSET (Malaysia)

Prof. Dr. A.Pasupathy, B.E.,M.Tech.,Ph.D
Hon. FISME, PEng., FSET (Malaysia)
SPE 2017 President

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ T. SATHEES of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled FLEXURAL AND IMPACT BEHAVIOR OF KEVLAR/E-GLASS REINFORCED EPOXY MATRIX COMPOSITES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr/Ms.~~ LOKESHWARAN. N of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled PURIFICATION OF WASTE WATER FROM DIE INDUSTRIES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

[illegible]samy

Shri.CA N.V.Natarajan
Chairman

Scanned by CamScanner

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that Mr. S.A. VENKATESH, ASSISTANT PROFESSOR/MECH, PAAVAI ENGINEERING COLLEGE

~~Participated~~ / Presented a paper entitled INVESTIGATION OF MUDAR FIBER REINFORCED COMPOSITE MATERIALS - 'NATURAL FIBERS'

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY

CONVENER

S. Nimala

PRINCIPAL

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ T.THANGAVEL AP/MECH of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled DESIGN AND DEVELOPMENT OF CROP STORAGE CART AND RIDGER WITH SPECIALIZED MULBERRY LEAVES CUTTER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr.~~/Prof./~~Mr./Ms.~~ S. A. VENKATESH / MECH . AP of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled DESIGN AND FABRICATION OF SEED SOWING MACHINE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./Prof./Mr./Ms. T.SATHEES, AP/MECH of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled ACTIVE NOISE CANCELATION IN AUTONATIVE MUFFLER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

ENGINEERING GRAPHICS

(Common to All Branches)

REVISED EDITION Autocad Commands

S. Prabhakaran
Dr. V. Subburam
Dr. M. Makesh

MARUTHI PUBLISHERS
Writing For Your Success

Scanned by CamScanner

ENGINEERING GRAPHICS

(Common to all branches)

REVISED EDITION

S. Prabhakaran, M.E.,
Associate Professor
Paavai Engineering College(Autonomous)
Namakkal

Dr. V. Subburam, M.E., Ph.D.,
Professor
Paavai Engineering College(Autonomous)
Namakkal

Dr. M. Makesh, M.E., Ph.D.,
Professor
Paavai Engineering College(Autonomous)
Namakkal

MARUTHI PUBLISHERS
WRITING FOR YOUR SUCCESS

No.5/7B, Ramakrishnapuram, Villivakkam, Chennai - 600 049
9080 505073, 9962 777 903, 81223 38899 maruthipub@gmail.com

Scanned by CamScanner

ACKNOWLEDGMENT

We would like to place on record our deepest gratitude to the management of Paavai Institutions, our Chairman **CA N.V. Natarajan**, and Correspondent **Mrs. Mangai Natarajan**, Who have always inspired and motivated us to achieve sucess in challenging jobs for their continuous support and encouragement in preparting this book.

We are also indebted to our Director-Administration **Dr. K.K. Ramasamy** for his inputs to enhance the contents. We are grateful to **Dr.M.Premkumar,** Principal Paavai Engineering College for his valuable suggestions for the production of this book.

We would like to express our sincere thanks to **Prof. A.P.Sivasubramaniam,** HOD / Mechanical, Paavai Engineering College, **Prof. Mohan,** Academic co-ordinator, I year, **Dr. P. Jayakumar,** HOD/Maths, **Dr. G. Raja,** HOD/ Chemistry for their helping hand in preparing this book.

We are very thankful to all our colleagues, who directly or indirectly have gave their assistance, support and encouragement in bringing out this book successfully.

We also extend our gratitude to our friends and family for their moral support. We are greatly thankful to **"M/s. Maruthi Publishers"** for kindly accepting to publish this text book.

- Authors

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ D.R.P. RAJARATHNAM - HOD/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled INTELLIGENT RAILWAY GATE CONTROLLING SYSTEM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. C.N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)
NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ D.R.P. RAJARATHNAM, HOD/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled ROBOT CONTROLLED BY A BLUETOOH in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. G.N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ D.R.P. RAJARATHNAM - HOD/MCT. of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled OBSTACLE AVOIDANCE ROBOT in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ D.R.P. RAJARATHNAM, HOD /MCT. of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AUTOMATIC LIGHT CONTROLLER USING PIR SENSOR USING PIR SENSOR. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ D.R.P. RAJARATHNAM, HOD/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled FABRICATION OF RFID AUTOMATED RETAIL TROLLEY WITH ULTRASONIC SENSOR. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ D.R.P. RAJARATHNAM / HOD-MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled SAFETY GUARD FOR BLIND in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ D.R.P. RAJARATHNAM - HOD/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AUTOMATIC STREET LIGHT CONTROLLER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ S. VINOTH – AP/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled INTELLIGENT RAILWAY GATE CONTROLLING SYSTEM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. G.N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ S. RAJESH RAJA - AP/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled ROBOT CONTROLLED BY A BLUETOOTH in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V. Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ G. RAJA, AP/MCT. of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AUTOMATIC LIGHT CONTROLLER USING PIR SENSOR USING PIR SENSOR. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V. Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ T. ARUN PRASAND /MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled FABRICATION OF RFID AUTOMATED RETAIL TROLLEY WITH ULTRASONIC SENSOR. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ ARUN BABU R |AP| MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled SAFETY GUARD FOR BLIND in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V. Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr.~~/Prof./~~Mr./Ms.~~ S. RAJESH RAJA - AP/MCT of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AUTOMATIC STREET LIGHT CONTROLLER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ G. SRINIVASAN, PROFESSOR & HEAD of CHEMICAL ENGG - PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled DECOLOURISATION INDUSTRIAL EFFLUENTS.

in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

ARJUN
COLLEGE OF TECHNOLOGY

&

IJTET
INTERNATIONAL JOURNAL FOR TRENDS IN ENGINEERING AND TECHNOLOGY
ISSN:2349-9303

2018 ICTTE
5th INTERNATIONAL CONFERENCE ON TRENDS IN TECHNOLOGY AND ENGINEERING

REF No....ICCTE/128.....

Certificate

This is to certify that Mr/Ms/Dr VENKATESAN. B

from Paavai Engineering College has

participated and presented a paper titled Security Using Cognitive

Service.

in the **5th International Conference on Trends in Technology And Engineering** held

at **Arjun College of Technology**, Tamilnadu, India on **07.04.2018.**

PRINCIPAL

CHIEF-IN-EDITOR

Annapoorana Engineering College

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

NH-47, Sankari Main Road, Periyaseeragapadi, Salem- 636 308, Tamilnadu.

in association with

The Institution of Engineers (India),

Salem Local Center, Salem.

NCSETM 2K18

National Conference on Science, Engineering, Technology and Management

NCSETM 2K18

CERTIFICATE

This is to Certify that Mr. B.VENKATESAN of Paavai Engineering College, has Presented a paper titled Home Automation Using Internet of Things in NCSETM 2k18, held at Annapoorana Engineering College, Salem on 25th January 2018.

S. Sha

Conference Chair

Patron

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

(Approved by AICTE , New Delhi & Affiliated to Anna University, Chennai)
Deviyakurichi-636112, Attur (Tk), Salem (Dt), Tamil Nadu.
Ph: 04282-230199, Fax: 04282 - 230399, Mobile : 96551 44999
E-mail : bharathiyar@biew.ac.in, Website : www.biew.ac.in

ISTE & IETE Sponsored International Conference on
RESEARCH ADVANCES IN COMMUNICATION, COMPUTATION, ELECTRICAL SCIENCE AND STRUCTURES

Certificate

This is to certify that Ms./~~Mr.~~ N. HEMALATHA , AP-IT

of PAAVAI ENGINEERING COLLEGE

has ~~Participated~~/Presented a paper in the title GEOGRAPHICAL ROUTING FOR AZURE VIRTUAL MACHINE

in ISTE & IETE sponsored International Conference held on 24th March 2018.

Coordinator

Prof. S.Kumar
Vice-Principal, Convenor

Dr. R. Punidha
Principal, Chairperson

MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Approved by AICTE, Accredited by NBA, NAAC, Affiliated to Anna University)

RASIPURAM - 637408.

CERTIFICATE

DST-SERB Sponsored

International Conference on

'Innovations in Science, Engineering and Technology for Sustainable Development'

This is to certify that A. SATHYAPRIYA, RESEARCH SCHOLAR, BHARATHIYAR UNIVERSITY, COIMBATORE

Participated / Presented a paper entitled CHALLENGES AND RELATED COPING STRATEGIES OF WORK LIFE BALANCE OF DUAL CAREER COUPLES

in Department of Science and Technology - Science and Engineering Research Board sponsored International Conference on **'Innovations in Science, Engineering and Technology for Sustainable Development' (ISETSD-2018)** held on 30th & 31st March 2018.

ORGANIZING SECRETARY | CONVENER | PRINCIPAL

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

NH-44, PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2018

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ R.N.PADMA, ASSOCIATE PROFESSOR of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled A study on Customer Satisfaction towards window shopping in malls with special reference - Coimbatore. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2018) organized by Paavai Engineering College, on 20th and 21st April 2018.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director - Administration

Shri. CA N.V.Natarajan
Chairman

Bharathi Education Trust (R.)
Since 1962

ಭಾರತೀ ಕಾಲೇಜು **BHARATHI COLLEGE**
Since 1970

Re-Accredited by NAAC with 'A' Grade : CGPA 3.38 Permanently affiliated to University of Mysore

UNDER GRADUATE, POST GRADUATE & RESEARCH CENTRE
BHARATHINAGARA, MADDUR TQ., MANDYA DIST. - 571 422. KARNATAKA

DEPARTMENT OF COMMERCE & MANAGEMENT

Organized One Day National Seminar

Certificate

This is to certify that Prof/Dr./Mr/Mrs A. Bathiya Priya, Research Scholar, Bharathiar University, Coimbatore on "WLR of Dual Career Couples" *has participated as resource person / deligate in one day National Level seminar on "Non-Performing Assets (NPA) - Regulatory Measures" organized by the Department of Commerce & Management, Bharathi College on 20th January 2018.*

Chairman *Principal* *Organizing Secretary*

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ SENTHILVELAN JAMBAMOORTHY of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled A SYSTEM FOR VIDEO STREAMING OVER MULTI-HOP WIRELESS NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ RATHNA KUMAR CHINNA SAMY of BHARATHIAR UNIVERSITY participated and presented a paper entitled AN OVERVIEW AND THE IMPLEMENTATION OF VISOAL CRYPTOHRAPHY TECHNIQUES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. ANNAPOORANI VENKATESAN of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AN IMPORTANT INTELLIGENT INFORMATION EXTRACTION FROM LEGAL TEXTS USING PROBABILISTIC MODELS FOR SEGMENTING & LABELING SEQUENCE DATA in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Annand

Convenor | Principal | Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. M.SIVAKAMI of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled A REVIEW ON MOBILE CLOUD COMPUTING - THE ISSUES SOLUTIONS AND THE FUTURE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Academic Year 2016-2017

International Conference on Systems, Science, Control, Communication, Engineering and Technology 2016 [ICSSCCET 2016]

ISBN	978-81-929866-6-1	VOL	02
Website	icsscet.org	eMail	icsscet@asdf.res.in
Received	25 – February – 2016	Accepted	10 - March – 2016
Article ID	ICSSCCET148	eAID	ICSSCCET.2016.148

Design Optimization and Analysis of Slat in Military Aircraft

S Sendhil Kumar[1], K Balaji[2], C Azhagesan[1], D Raj Kumar[3], B Indhumathi[1]
[1,2,3]Karpagam Institute of Technology Coimbatore, India
[4,5]Paavai Group of institutions Namakkal, India

Abstract: *Aircraft design is an evolutionary process rather than a revolutionary process. This paper presents the background and process involved in the Analysis and assembly of a slat system for the LCA Military aircraft. This paper details the application and theory behind slat system. As well it lays out the tools and materials required for the job. Slats are aerodynamic surfaces on the leading edge of the wings of aircraft which, when deployed, allow the wing to operate at a higher angle of attack. In LCA Military aircraft during the slat assembly, the slats are found to be improper in their axis and there is a step found between the slats. When slat assembly is improper the aircraft has to be limited in its performance such as it affects on its angle of attack as well as on its mach number. This is the one of the short term solution recommendation. The objective of our papers aims to provide a solution for remounting the Slat bracket which are having errors. Optimizing the slat bracket and feasible study and analysis of adjusting the jack mounting bracket is to be done. By various analysis and problem solving techniques it is been found that by using of eccentric bush in the jack bracket the slat can be adjusted during installed with greater accuracy and the step issue could be overcome . This is to be compiled on the aircraft and to be checked and ensured that the dimension and deviations are accurate as per the manual*

Keywords: *SLAT, STOL, CATIA*

INTRODUTION

Slats are aerodynamic secondary control surfaces on the leading edge of the wings of fixed-wing aircraft which, when deployed, allow the wing to operate at a higher angle of attack. A higher coefficient of lift is produced as a result of angle of attack and speed, so by deploying slats an aircraft can fly at slower speeds, or take off and land in shorter distances. They are usually used while landing or performing manoeuvres which take the aircraft close to the stall, but are usually retracted in normal flight to minimize drag. The chord of the slat is typically only a few percent of the wing chord. The slats may extend over the outer third of the wing, or they may cover the entire leading edge. Many early aerodynamicists, including Ludwig Prandtl believed that slats work by inducing a high energy stream to the flow of the main airfoil thus re-energizing its boundary layer and delaying stall. In reality, the slat does not give the air in the slot high velocity (it actually reduces its velocity) and also it cannot be called high-energy air since all the air outside the actual boundary layers has the same total heat.

Manufacturing Stages of Slats and Installation Process

Slats

Slats are aerodynamic surfaces on the leading edge of the wings of fixed-wing aircraft which, when deployed, allow the wing to operate at a higher angle of attack. A higher coefficient of lift is produced as a result of angle of attack and speed, so by deploying slats an

This paper is prepared exclusively for International Conference on Systems, Science, Control, Communication, Engineering and Technology 2016 [ICSSCCET 2016] which is published by ASDF International, Registered in London, United Kingdom under the directions of the Editor-in-Chief Dr T Ramachandran and Editors Dr. Daniel James, Dr. Kokula Krishna Hari Kunasekaran and Dr. Sukishore Elangovan. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage, and that copies bear this notice and the full citation on the first page. Copyrights for third party components of this work must be honoured. For all other uses, contact the owner/author(s). Copyright Holder can be reached at copy@asdf.international for distribution.

2016 © Reserved by Association of Scientists, Developers and Faculties [www.ASDF.international]

Cite this article as: S Sendhil Kumar, K Balaji, C Azhagesan, D Raj Kumar, B Indhumathi. "Design Optimization and Analysis of Slat in Military Aircraft". *International Conference on Systems, Science, Control, Communication, Engineering and Technology 2016*: 722-726. Print.

EXPERIMENTAL INVESTIGATION OF POLYESTER FIBER REINFORCED CONCRETE

J.S.Kishore Kumar1, A.Jayapal2

1 PG Scholar, Structural Engineering, Paavai Engineering College, Namakkal
2 Assistant professor, Department of civil Engineering, Paavai engineering college, Namakkal

ABSTRACT- Concrete is a composite construction material made primarily with aggregate, cement, and water. There are many formulations of concrete, which provide varied properties, and concrete is the most used man-made product in the world. But the cracks in the structure are unavoidable for more than centuries and by the addition of this polyester fibre we can not only increase the strength of the concrete but also prevents the cracks for a longer period. The polyester fibre is added and tested to the M20 concrete. The experimental study of this technique is studied by compressive strength test, flexural strength test and split tension test. The use of polyester fibre varies from 0.05 % to 0.45%. The test results for compressive, flexural and split tension test was studied at the age of 28 day. There is notable increase in the strength of the concrete made and also the crack arrest. In this paper we briefly studied about the behaviour of the concrete in addition of the polyester fibre.

I. INTRODUTION:

In our experiment we have used the polyester fibre manufactured by Reliance industries limited which is named as Recron3S.It is used in many industries like construction, batteries, asbestos sheets etc. Concrete has relatively high compressive strengthbut much lower tension strength. For this reason it is usually reinforced with materials that is strong in tension. The elasticity of concrete is relatively constant at low stress levels but starts decreasing at higher stress levels as matrix cracking develop. Concrete has a very low coefficient of thermal expansion and shrinks as it matures. All concrete structures crack to some extent, due to shrinkage and tension. To avoid cracks due to shrinkage we add some polyester fibre to it. Recron 3S prevents the micro shrinkage Cracks developed during hydration, making the structure/plaster/component inherently stronger. Polyester fibre reduces rebound splattering of concrete and shotcrete. The modulus of elasticity of Recron 3s is high with respect to the modulus of elasticity of the concrete or mortar binder. Recron 3s fibre helps in increasing flexural strength.

Fig 1 Polyester Fibre

Table 1 Properties of Polyester Fibre

Property	Value
Cut length	6 mm or 12 mm
Diameter	0.036mm
Aspect Ratio	334
Shape of fibre	Special for improved holding of cement aggregates
Specific Gravity	1.36 - 1.41%
Tensile Strength	6000 kg/cm^2
Dispersion, Acid & Alkali resistance	Excellent
Dosage rate	Concrete : Use CT 2024 at 909 g/m3
	Plaster: Use CT 2012at 125 g/cement bag 1:4cement/sand ratio

II. RESEARCH METHODOLOGY

The significance of the present investigation is to study the performance of concrete with and without Recron Fiber Reinforced Concrete (RFRC). The mechanical properties of concrete such as compressive strength, split tensile strength and flexural strength are investigated and compared with the controlled concrete.

III.EXPERIMENTAL PROCEDURE

The polyester fiber is added in the proportion of 0.05% in cement mass to increase the mechanical and durability properties. Then the compressive strength, flexural strength and split tensile test is undergone for conventional concrete and fiber reinforced concrete and the strength is found out. The M20 concrete is cast and cured for 28 day. Later 28 day it is undergone to compressive strength test and split tensile strength in the compressive testing machine. Then flexural

STUDY ON STRENGTH AND DURABILITY PROPERTIES OF HIGH STRENGTH GEOPOLYMER CONCRETE WITH FLY ASH AND GGBFS

K.Narayana Devi1, K.Sharmiladevi2

1 PG Scholar, Structural Engineering,
Paavai Engineering College, Namakkal
2 Assistant Professor, Department of Civil Engineering,
Paavai Engineering College, Namakkal

Abstract- Geopolymer concrete (GPC) is one of the most recently developed structural concretes, where industrial wastes like fly ash, rice husk, ground granulated blast furnace slag (GGBS) are utilized for total replacement of ordinary Portland cement in concrete. A major contribution to structural concrete in the form of Geopolymer concrete was developed by many investigators with lesser grade of concrete. In the present investigation high strength Geopolymer concrete of M60 grade has been developed, using mineral admixtures like fly ash and GGBS with polymerization chemicals without using any type of cement. Many parameters are involved in the production of GPC, out of which alkaline liquid mineral admixtures ratio and super plasticiser are important. Sulphonated Naphthalene based dispersing agents are adopted as super plasticizers to obtain better mechanical properties of GPC. Low calcium fly ash gives better results from the point of view of chemical composition. GGBS is used to fill the voids between fly ash and fine aggregate and this helps in the degree of particle aggregation, nature and quantity of impurities and basic particle size. Sodium hydroxide and sodium silicate solutions used as alkaline liquids react with fly ash and GGBS to form the Geopolymer gel binding the aggregates to produce GPC. The final product was cured in steam curing chamber at 60°C for 24 hours. Based on the above experiments GPC can be considered as a very good environmental friendly concrete saving precious energy and making use of waste materials.

INTRODUCTION

Geopolymer concrete (GPC) has been described as one of the most revolutionary development in concrete construction. Geopolymer was developed to replace conventional cement and utilization of industrial waste like fly ash, rice husk, ground granulated blast furnace slag (GGBS) and Metakaoline. Production of one tonne of cement generates an equal amount of carbon di oxide polluting the atmosphere which becomes a major threat to the environment. In addition, large quantity of energy is also required for the production of cement. This leads to the development of an alternative binder and usage of industrial wastes.

The thermal power plants using coal produces fly ash and steel plants produces GGBS which has to be dumped requiring large areas. GPC addresses the above issues in making concrete as a sustainable material. GPC doesn't require any cement, thereby while producing cement avoiding pollution of the environment. Geopolymer used as a binding material in GPC have better resistance against acids, elevated temperature, high strength, also they have better durability, cold setting, quick setting, stable bonding of heavy metals and harmful substances and simple manufacturing techniques. The literature review indicates that most of the work on Geopolymer concrete was focused on normal strength Geopolymer concrete. Therefore a need based studies on high strength Geopolymer concrete was carried out in the laboratory for better usage of Geopolymer concrete in Prestressed and precast industries. At present the application of precast elements used in construction industries. The novelty of the thesis is that an attempt has been made to produce high strength Geopolymer concrete, which will have applications in Prestressed and precast industries.

1.1 Geopolymer

Davidovits (1982) proposed that an alkaline liquid could be used to react with the silicon (Si) and the aluminium (Al) in a source material of geological origin or in by-product materials such as fly ash and rice husk ash to produce binders. Because the chemical reaction that takes place in this case is a polymerization process, and thus he coined the term 'Geopolymer' to represent these binders. The polymerization process involves a substantially fast chemical reaction under alkaline condition on Si-Al minerals, resulting in a three-dimensional

Experimental Investigation on the Behavior of Waste Material on the Strength Properties of High Performance Concrete

AP.Vijayaraj[1], S.Gayathiri[2]

[1]PG Scholar, Structural Engineering, Paavai Engineering College, Namakkal

[2]Assistant Professor, Department of Civil Engineering, Paavai Engineering College, Namakkal

Abstract— **Manufacturing of high performance concrete, which is majorly used as building material in the major and huge infrastructure projects, is a daunting task. Though the recent advancements have conquered the hurdles of the preparation of high performance concrete, the use of green materials such as Fly Ash and Rice Husk Ash is limited. Apart from the green materials, many conventional and mineral admixtures or micro materials are available in the market, which enhances the quality and performance of concrete such as Metakaoline, Alccofine and Silica Fume etc. The quality of concrete mix is assessed through various mechanical properties like compressive strength, flexural strength and split tensile strength and various durability tests like rapid chloride penetration test (RCPT), sorptivity test, chloride resistance test, accelerated corrosion test and sea water attack test are carried out to analyse the performance of HPC. The objective of this study is to evaluate the structural strength of high performance concrete by utilizing green and pozzolanic material as supplementary cementitious material and potential use of non-destructive testing devices for in-situ strength parameters of HPC during and after construction. This research study primarily focuses on the development of empirical correlations for estimating the 28 & 56 days compressive strength, flexural strength and split tensile strength for diverse range of water/binder ratio for binary concrete mixes. Detailed laboratory investigations are performed covering almost all available supplementary cementitious materials. This study helps in identifying influence of Fly Ash, Rice Husk ash on strength characteristics of HPC.**

INTRODUCTION

Concrete is an extraordinary and key structural material in the human history. As written by Brunauer and Copeland (1964), "Man consumes no material except water in such tremendous quantities". It is no doubt that with the development of human civilization, concrete will continue to be a dominant construction material in the future. However, the development of modern concrete industry also introduces many environmental problems such as pollution, waste dumping, emission of dangerous gases, depletion of natural resources etc.

Presently, Portland cement and supplementary cementitious materials are cheapest binders which maintain enhance the performance of concrete. However, out of these binders, production of Portland cement is very energy exhaustive along with CO2 production. About 1 tonne of CO2 is produced in manufacturing of each tonne of Portland cement (PC). Thus, cement production accounts for about 5% of total global CO2 emissions (Tatem, 2003). On the other side of the spectrum, in order to reduce the rate of climate change, a global resolution to an 8% reduction in greenhouse gas emissions by 2010 was set in the Kyoto Protocol in 1997. Developed countries are much aware for its need and a climate change tax was introduced by them. In this connection, UK Government also introduced same kind of tax on 1st April 2001, in order to achieve its target of a 12.5% reduction in greenhouse gas emissions which is the government's domestic goal of a 20% reduction in CO2 emissions by 2010.

Sustainability and Concrete Industry

Sustainability is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). Therefore, sustainable development is disturbed with protecting the world's resources and sharing its benefits for the betterment of generations to come.

In order to fulfill its commitment to the sustainable development of the whole society, the concrete of tomorrow will not only be more durable, but also should be developed to satisfy socio-economic needs at the lowest environmental impact. In his prediction for the 21st century concrete construction, Swamy (1998) stated "bearing in mind the technical advantages of incorporating PFA, slag, SF and other industrial pozzolanic by-products in concrete, and the fact that concrete with these materials provides the best economic and technological solution to waste handling and disposal in a way to cause the least harm to the environment, PFA, slag, SF and similar materials thus need to be recognized not merely as partial replacements for PC, but as vital and essential constituent of concrete". Thus, using various wastes or by-

A Study of Structural Health Monitoring Of RC Beam by Using Transducers

C.Kannan[1], J.Doraikkannan[2]

[1] PG scholar Structural Engineering, Paavai Engineering College, Namakkal

[2] Assistant professor, Department of Civil Engineering, Paavai Engineering College, Namakkal

ABSTRACT

Piezoelectric lead zirconatetitanate (PZT) transducers are increasingly used for monitoring various engineering structures. PZT transducers are used for monitoring structures based on the electro- mechanical impedance (EMI) for a single PZT and the wave propagation technique for multiple PZTs. In concrete structures, the EMI sensing region is small due to high damping of the concrete. Using the wave propagation technique with high actuation voltage, a larger area can be monitored. The smart aggregates (embedded PZT transducers) can be employed using the wave transmission technique to monitor very large areas with a reasonably low actuation signal. The combination of smart aggregates (using the wave transmission technique) with surface bonded PZTs (using the wave propagation technique) can provide an effective method to study both the local and overall conditions of the structure. In this work, a concrete beam with the dimensions of 2204020 cm was cast and nine PZT transducers were embedded or attached on the beam. The PZT readings were correlated with the damage on the structure. Combination of smart aggregates (using the wave transmission technique) with surface bonded PZTs (using the wave propagation technique) for SHM was studied. The results show that this combination provides an effective way to assess both the local and overall conditions of the structure.

Keywords – SHM, PZT, EMI, Patches, Frequency, Mode shapes, Time factor, and RC.

I. INTRODUCTION

Due to increasing number of important infrastructures and the catastrophic consequence of failure, structural health monitoring (SHM) has attracted intensive research attention in the last two decades. In particular, the piezoelectric lead zirconatetitanate (PZT) transducers based SHM techniques have been studied intensively for their potential applications in civil, mechanical and aerospace engineering. PZT transducers are used for monitoring structures based on the electro-mechanical impedance (EMI) technique and the wave propagation technique, both relying on the

Elastic wave propagation in solids. In the EMI technique, one PZT transducer usually serves as actuator and sensor, sending out the interrogating wave and receiving the reflected wave at the same time. Unlike steel structures for which large area

can be monitored using the EMI technique, in concrete structures, the EMI sensing region is small due to the high damping of the concrete. With an impedance analyzer having interrogation voltage of 2V, the sensing region is limited to 30–40 cm around the PZT. A slightly larger area can be monitored using the surface wave propagation technique with Multiple PZTs where the elastic wave is sent by one PZT (actuator) and received by one or more PZTs (sensors). Thus, the surface bonded PZTs based on either the EMI or wave propagation technique are not effective for monitoring a large area of or the entire concrete structure due to their small sensing range. On the other hand, the smart aggregates (embedded PZT transducers) using the wave transmission technique (based on electrical wave transmission) can be employed to monitor very large areas with a reasonably low actuation signal. Elastic waves in solid materials are guided by the boundaries of the media in which they propagate and dissipate quickly due to the damping of the material, while electrical wave transmission relies on continuity of transmission medium between the sender and receiver for transmission of sinusoidal wave. Thus, the EMI and wave techniques based on elastic wave propagation are effective for local damage detection and the electrical wave transmission is suitable for assessing the overall condition of a structure. Here, the local damage means a crack in vicinity of a PZT transducer within its sensing range and the overall condition refers to the whole structural element or few connected structural elements. In this work, a concrete beam with the dimensions of 22040 20 cm was cast and nine PZT transducers were embedded or attached on the beam. As the structures may undergo sudden over loading due to natural disasters or accidental loading during their life time, it is important to evaluate the condition of the structure after overloading. Therefore, a cyclic loading scenario was designed in the experiment. The wave propagation and wave transmission results were correlated with the damage on the structure. Combination of smart aggregates (using the wave transmission technique) with surface bonded PZTs (using the wave propagation technique) for SHM was studied. The results show that this combination provides an effective way to assess both the local and overall conditions of the structure.

II.EXPERIMENTAL SETUP

A total of nine PZT transducers with sizes of 20200.5 mm developed by PI Ceramic were used in this experimental work. Four of them were fabricated as smart aggregates and

EXPERIMENTAL INVESTIGATION ON GEOPOLYMER CONCRETE WITH E-WASTE

A Kiruthika[1], J Dorairkkannan[2]

[1] PG Scholar, Structural Engineering, Paavai Engineering College, Namakkal

[2]Assistant Professor, Department of Civil Engineering, Paavai Engineering College, Namakkal

ABSTRACT

The major problem the world is facing today is the environmental pollution. The pollution effects on environment can be reduced by increasing the usage of industrial by-products in our construction industry. Geo-polymer concrete is the concrete in which concrete Portland cement is fully replaced by fly ash and GGBS(Ground granulated blast furnace slag). Sand is replaced with E-waste at 10, 20 & 30%. The alkaline liquids used in this study are the solutions of sodium hydroxide (NaOH) and sodium silicate (Na_2SiO_3).Molarity of sodium hydroxide (12M) is considered, 90% fly ash and 10% GGBS were used in this study. The present study covers the use of E-waste as partial replacement of fine aggregate in geopolymer concrete. This project work is to make and to study the compressive and tensile strengths of geopolymer concrete and Geopolymer concrete with E-waste as a partial replacement of the fine aggregates ranging from 0 to 30%, on the strength criteria of M40 of grade concrete. It has been proved that 20% replacement of E-waste achieved higher strength of geopolymer concrete than the normal geopolymer concrete. Beam was casted for 20% E-waste with geopolymer and conventional geopolymer concrete and it is tested for flexure.

Keywords— Fly ash, GGBS, E-Waste, Sodium hydroxide, Sodium silicate, Molarity, and Geopolymer concrete.

I.INTRODUCTION

Concrete is the most widely used construction material in the world. Ordinary Portland Cement (OPC) has been traditionally used as the binding material for concrete. The manufacturing of OPC requires the burning of large quantities of fossil fuels and decomposition of limestone which results in significant emissions of carbon-di-oxide (CO2) to the atmosphere. This CO2 emission is the main cause for global warming, which have become a major concern. In order to reduce this, Geopolymer technology was introduced.

1.1 Geopolymer

The term 'Geopolymer' was used by Professor Davidovits in 1978 to describe the inorganic alumino-silicate polymeric gel resulting from reaction of amorphous alumino-silicates with alkali hydroxide and silicate solutions. Unlike ordinary Portland cement, Geopolymer do not form calcium silicate hydrates for matrix formation and strength but utilize the poly condensation of silica and alumina to attain strength. Two main constituents of Geopolymer are source materials and alkaline liquid. The source material should be alumina-silicate based and rich in both silica and alumina. In Geopolymer concrete, supplementary cementing materials such as Fly ash, Silica fume, Rice husk ash , Ground Granulated Blast furnace Slag (GGBS) and Metakaolin are used as alternative binders to Portland cement. In this project, Fly ash and Ground Granulated Blast furnace Slag (GGBS) are used as alternative binders.

Geopolymer is an excellent alternative which transform industrial waste products like GGBS and fly ash into binder for concrete. Geopolymer binders are used together with aggregates to produce geopolymer concrete. They are ideal for building and repairing infrastructures and for pre-casting units, because they have very high early strength. Their setting times can be controlled and they remain intact for very long time without any need for repair. Geopolymer, with properties such as abundant raw resource, little CO2 emission, less energy consumption, low production cost, high early strength and fast setting.

Geopolymer concrete is inorganic polymer composites, which are prospective concrete with the potential to form a substantial element of an environmentally sustainable product by replacing the Conventional concrete. The major benefit of the geopolymer is polymer is making use of industrial products. In addition, it lowers the emission of carbon dioxide by about 80% when compared to Ordinary Portland cement.

Geopolymer indicates transformation of

Design and Analysis of Cold Formed Steel Structures By Ansys

S.Elango[1], J.Doraikkannan[2]
[1]PG Scholar, Structural Engineering, Paavai Engineering College, Namakkal

[2]Assistant professor, Department of Civil Engineering, Paavai Engineering College, Namakkal

I.INTRODUCTION

1.1 General

Cold-formed steel members have become competitive building products in modern building construction due to their inherent favorable characteristics over conventional hot-rolled steel members. Due to cold work, the material properties of the formed sections show significant changes compared to those of the steel strip, plate, or bar before forming. The change in the mechanical properties due to cold work is caused mainly by strain hardening and strain aging. Cold-formed members show high yield strength around bends compared to flat portions of cross-section. The increase in the strength values can be used in the design process in some applications as a significant advantage.

Sometimes they are also called Light Gauge Steel Sections or Cold Rolled Steel Sections. In market various shapes of these products are available C sections are predominantly used in light load and medium span situations such as roof systems. Their manufacturing process involves forming steel sections in a cold state (i.e. without application of heat) from steel sheets of uniform thickness. The Direct strength method, finite element method, generalized beam theory, and the finite strip method have been used in investigations related to cold-formed steel structures At the present time, cold-formed steel application are extremely wide spread. However, the complications induced by the inherent characteristics of such structures which arise due to the slenderness of members and cross- sections, promote failure at different loading conditions, and such effects must be taken into account in design. Hence cold formed steel are widely used in industrial, commercial, and agricultural buildings.

1.2 Advantage of Cold Formed Section

Cold forming has the effect of increasing the yield strength of steel, the increase being the consequence of cold working well into the strain hardening range. These increases are Predominant in zones where the metal is bent by folding. The effect of cold working is thus to enhance the mean yield stress by 15% 30%. For purposes of design, the yield stress may be regarded as having been enhanced by a minimum of 15%.

1) High load resistance for a given section depth.
2) Long span capability (up to 10m) and dimensional accuracy.
3) Long term durability and free from long term creep and shrinkage.
4) Lightness, which is important for building in poor ground condition.
5) Ease of prefabrication and construction, as members are delivered to site cut to length and with pre-punched holes, requiring no further fabrication.
6) Robustness, but sufficiently light for site handling.
7) Connections are strong and easily made in factory or on site.

1.3Application

1) Cross sectional shapes are formed to close tolerances and these can be consistently repeated for as long as required.
2) Cold rolling can be employed to produce almost any desired shape to any desired length.
3) Pre-galvanized or percolated metals can be formed, so that high resistance to corrosion, besides an attractive surface finish, can be achieved.
4) All conventional jointing methods, (i.e. riveting, bolting, welding and adhesives) can be employed.
5) High strength to weight ratio is achieved in cold rolled products.
6) They are usually light making it easy to transport and erect.

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ VIGNESH . P of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled SHAKE TABLE TESTING OF POLYESTER FIBRE REINFORCED CONCRETE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Shake Table Testing of gravity Load Designed Reinforced concrete Frames with Unreinforced Masonry Infill Walls

V. Prabakaran[1], P.Vignesh[2]

[1]PG Scholar, Structural Engineering Paavai Engineering College, Namakkal

[2]Assistant professor, Department of Civil Engineering, Paavai Engineering College,Namakkal

ABSTRACT

A large number of existing buildings, particularly those constructed prior to the enforcement of ductile design philosophy of 1970's, were primarily designed and detailed to resist gravity loads. Structures of this type do not have the current reinforcement detailing required by modern codes in high and medium seismic zones and, hence, they are considered potential life-safety hazards. In addition, the presence of masonry infill walls was often ignored by engineers since they are normally considered as architectural elements. However, lessons learned from past earthquakes and from several tests performed have shown that those walls tend to interact with the bounding frame when the structural system is subjected to moderate or severe earthquake ground motions and that such interaction may or may not be beneficial to the performance of the structure.

This paper presents the first part of an experimental testing program carried out at the University of British Columbia (UBC) in Vancouver, Canada testing the performance of 1/2 scale Gravity Load Designed Reinforced Concrete (GLDRC) frames with Unreinforced Masonry Walls. The first part of this testing program consisted of one monotonic loading test on an infilled frame and two series of shake table tests, one on an infilled frame and one on a Bare frame with the UBC Earthquake Engineering Research Facility (EERF) unidirectional shake table.

KEYWORDS: nonductile reinforced concrete , infill, lap splice

I.INTRODUCTION:

From the point of view of structural response, the in-filled frames presents a wide variability due to the characteristics of the ground motion, the mechanical properties of in-fills, the overall geometry, the frame-to-infill interface behavior, the horizontal or vertical arrangement of the in-fills, the presence of openings and their dimension & location, etc. Moreover, the problem of the out-of-plane behavior of in-filled frames deserves appropriate attention not only because of its potentially dangerous effect, but also in terms of its interaction with in-plane response. The impact of the in-fills on the seismic behavior of buildings may be positive or negative, depending on a large number of influential parameters. Generally, the performance of the structure can be significantly improved by the increase of strength and dissipation capacity due to the masonry in-fills, even if in presence of an increasing in earthquake inertia forces. However, for a proper design of masonry in-filled reinforced concrete frames it is necessary to completely understand their behavior under repeated horizontal loading. This research is one such attempt to address the above-mentioned issues by means of an analytical program on 3D RC frames with different orientation of masonry in-fills. Reinforced concrete (RC) frames with Un-Reinforced Masonry Infill panels (Masonry in-fills) are one of the most famous and most utilized types of construction throughout the world.

The major reason for this apart from ease of construction and economy is the fact that masonry infill provides excellent insulation and isolation from climatic forces such as heat, sun, wind, rain, extreme cold etc. Moreover they have a very good fire resistance too. The masonry in-fills are invariably constructed after the basic framework of beams, columns and slabs have gained sufficient strength. As a result, the bond of masonry in-fills with the RC framework is negligible at sides and top surface of the wall.

Therefore, they are classified as non-structural elements and the structures are analyzed and designed by considering them only as dead mass, while neglecting

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. BANUMATHY. D of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled AUTONOMOUS CLOUD MEMORY MANAGEMENT AND MULTICLOU INFRASTRUCTURE USING HYPER CLOUD in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Annu

Convenor

Principal

Chairman

Recent Trends in Communication, Control, Signal and Image Processing Applications

MAHENDRA
COLLEGE OF ENGINEERING

(Approved by AICTE, Affiliated to Anna University & Accredited By NAAC)

Salem - Chennai Main Road, Minnampalli, Salem - 636106

MAHENDRA EDUCATIONAL INSTITUTIONS

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

RTCCSIPA'17

CERTIFICATE OF PARTICIPATION

This is to certify that ~~Dr~~/~~Mr~~/Ms. D. BHANUMATHY of PAAVAI ENGINEERING COLLEGE, NAMAKKAL. participated and presented a paper titled CACHE TERMINATION METHOD FOR PRESERVING CACHE CONSISTENCY IN MOBILE NETWORKS. in the National Level Conference on "Recent Trends in Communication, Control, Signal and Image Processing Applications" on 31st March 2017.

31/03/17

Organising Secretary

Principal

International Conference
on
Information Sciences and Renewable Energy Sources

"ICISRES-17"

Certificate of Participation

This is to certify that

Ms. R. Dhivya,

participated the

International Conference on

Information Sciences and Renewable Energy Sources "ICISRES-17"

held on 2nd & 3rd March 2017

and presented the paper entitled

An Efficient Resource Provisioning Scheduling Approach Using Framework Service Selection Algorithm

P. Manimekalai

Dr.P.Manimekalai
CONVENER

Prof.Dr.R.Prabhu
CHAIRPERSON

C.NO:SCT/ICISRES-17/CS071

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution
Namakkal-637003,Tamilnadu,India.

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. DHIVYA . R of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled FINGER PRINT IMAGE COMPRESSION BASED ON FIND GRANED CATEGORIZATION ALGORITHM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

Recent Trends in Communication, Control, Signal and Image Processing Applications

MAHENDRA
COLLEGE OF ENGINEERING

(Approved by AICTE, Affiliated to Anna University & Accredited By NAAC)

Salem - Chennai Main Road, Minnampalli, Salem - 636106

MAHENDRA EDUCATIONAL INSTITUTIONS

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

RTCCSIPA'17

CERTIFICATE OF PARTICIPATION

This is to certify that Dr/Mr/Ms RENUGADEVI . P of PAAVAI ENGINEERING COLLEGE participated and presented a paper titled PRIVACY OF INTELLECTUAL DATA USING END to END ENCRYPTION OF SENSOR NETWORKS in the National Level Conference on "Recent Trends in Communication, Control, Signal and Image Processing Applications" on 31st March 2017.

31/03/17

Organising Secretary

Principal

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. RENUKADEVI . P of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled ENSURING DATA STORAGE SECURITY IN CLOUD COMPUTING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Annamalai

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ VIKRAM . N.R of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled MORPHOLOGICAL CHANGE DETECTION FRAMEWORK FOR SMART TRAFFIC SYSTEM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Anand

Convenor

Principal

Chairman

MUTHAYAMMAL ENGINEERING INSTITUTIONS

Rasipuram - 637 408. Namakkal Dt., Tamilnadu, India.

ICETS'17

CERTIFICATE OF PARTICIPATION

This is to certify that

Dhivya.R

Paavai Engineering College, Namakkal

has presented

LOCATION BASED ADS IN NETWORKS

at

4th INTERNATIONAL CONFERENCE ON ENGINEERING TECHNOLOGY AND SCIENCE

held on 30th & 31st March 2017

Muthayammal Engineering Institutions, Rasipuram, Namakkal Dt., Tamilnadu.

Convener 31/3/17

Principal
MCE

Principal
MEC

ICETS'17

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ SIVARAMAN . S of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled MORPHOLOGICAL CHANGE DETECTION FRAMEWORK FOR SMART TRAFFIC SYSTEM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. S.SIVARAMAN of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled LOCALIZATION OF MULTIPLE SPOOFING ATTACKERS AT DIFFERENT POWER LEVEL IN WIRELESS NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

MUTHAYAMMAL ENGINEERING INSTITUTIONS

Rasipuram - 637 408. Namakkal Dt., Tamilnadu, India.

ICETS'17

CERTIFICATE OF PARTICIPATION

This is to certify that

Sivaraman

Paavai Engineering College, Namakkal

has presented

DETECTING AND REDUCING MALICIOUS IN MOBILES USING KAYO'S

at

4th INTERNATIONAL CONFERENCE ON ENGINEERING TECHNOLOGY AND SCIENCE

held on 30th & 31st March 2017

Muthayammal Engineering Institutions, Rasipuram, Namakkal Dt., Tamilnadu.

Convener

Principal
MCE

Principal
MEC

ICETS'17

NCETC -2017

ALAGAPPA UNIVERSITY

(A State University Re-accredited with 'A' Grade by NAAC)
Karaikudi - 630 004

Department of Computer Science

National Conference on

Emerging Trends in Computing (NCETC -2017)

Certificate

This is to certify that Prof. Dr./ Mr. / Ms. V. MAHES KUMAR

of Asst. Professor - CSE., Paavai Eng college - Namakkal.

has Participated / Presented a Paper / Poster in the National Conference on **Emerging Trends in Computing (NCETC - 2017)**

organized by the **Department of Computer Science, Alagappa University,** Karaikudi During 13th and 14th March 2017.

Title of the Paper / Poster : To Detect And Prevent Identity Deception On Social Media Using Common Contribution Network Data

Dr. S.S. DHENAKARAN	Dr. S.SANTHOSHKUMAR	Dr. E.RAMARAJ	Prof. V.BALACHANDRAN
Co-ordinator	*Organizing Secretary*	*Convener*	*Registrar (i/c)*

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ MAHES KUMAR. V of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ADAPTIVELY SECURE BROADCAST ENCRYPTION WITH CONSTANT CHIPHERTEXTS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Annamalai

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. P.SANTHIYA of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled GRAPHICAL PASSWORD AUTHENTICATION SYSTEM USING CLOUD TECHNIQUES : A SURVEY in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

AIT

SSRG

Certificate

This is to certify that MAGENDIRAN.N of PAAVAI ENGINEERING COLLEGE has attended /presented a paper entitled "ADVANCED BIRCH CLUSTERING FOR MINING BIG DATA" in the

on

Principal

Editor SSRG Foundation

Kongunadu
College of Engineering & Technology
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai)
Accredited by NAAC, Bangalore Grade B
ISO 9001:2000 Certified Institution)
Namakkal - Trichy Main Road,
Thaturpatti Road, Thottiam (Taluk),
Trichy (Dt.) - 621 215, Tamilnadu, India

1st International Conference on Innovations in Electrical, Information and Communication Engineering

(ICIEICE'17)

24th & 25th March 2017

Publication Partners

ELSEVIER

TOJDEL

Organized by

Computer Society of India (CSI),
Internal Quality Assurance Cell (IQAC)
&
Department of CSE, ECE, EEE & IT

Certificate

~~Dr~~ / Mr. / ~~Ms~~ N. R. VIKRAM

of PAAVAI ENGINEERING COLLEGE

has participated in the 1st International Conference on Innovations in Electrical, Information and Communication Engineering held during 24th & 25th March 2017 at Kongunadu College of Engineering and Technology, Trichy, Tamilnadu, India.

He / ~~She~~ also presented a paper entitled EFFICIENT ENERGY TRANSFER USING WIRELESS CHARGING VEHICLE IN WIRELESS SENSOR NETWORK.

Conference Chair	General Chair	Chief Patron
Dr. J. Yogapriya	Dr. R. Asokan	Dr. PSK. R. Periaswamy

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. N. R. VIKRAM of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled EFFICIENT ENERGY TRANSFER USING WIRELESS CHARGING VEHICLE IN WIRELESS SENSOR NETWORK in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. N.R VIKRAM of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled LOCALIZATION OF MULTIPLE SPOOFING ATTACKERS AT DIFFERENT POWER LEVELS IN WIRELESS NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

THE NEED OF PREPROCESSING IN MEDICAL IMAGE PROCESSING FOR BREAST CANCER EARLY DETECTION

[1]J. Velumani, [2]Dr.RSD Wahidabanu

[1]Research scholar, Government College of Engineering,Salem-11,velumani_sangeetha@rediffmail.com
[2]Principal, Government College of Engineering, Thanjavur

ABSTRACT: The ultimate aim of medical image processing is swift diagnosis. The preliminary step in image analysis is preprocessing. It helps the radiologist to quickly identify the abnormal portions through computer aided diagnostics.As a measure of modeling quick decision support system we present the AVBM filter performance with respect to PSNR of various filters. It is a challenging task to detect the abnormality without preprocessing. Hence the proposed noise removal technique with AVBM filter preserves the image quality.

Keywords: filter, preprocessing, PSNR, Breast cancer

INTRODUCTION

As per the statistics related to http://globocan.iarc.fr/old/method/method.asp?country=356, there is a death due to some type of cancer in men is 4653 out of 7410 cases and in women 3548 out of 6658,(the estimated numbers in thousands).In India it was 367 men in 477 cases and 326 women in 537 cases .Estimated Cancer Mortality Worldwide in 2012: Women is <9.2 per 100,000. Estimated Cancer Incidence Worldwide in 2012: Women is <111.6

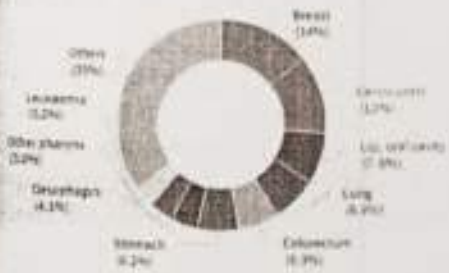
POPULATION FACT SHEETS: INDIA

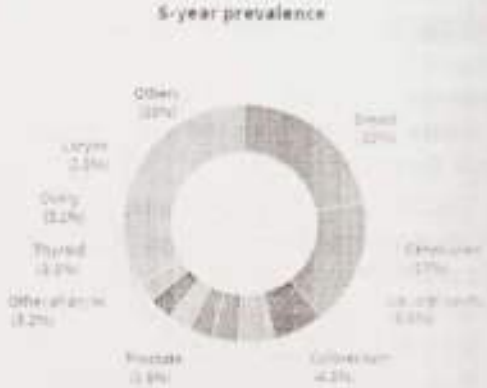
Mortality

Total : 682 830

Incidence

Total : 1 014 934



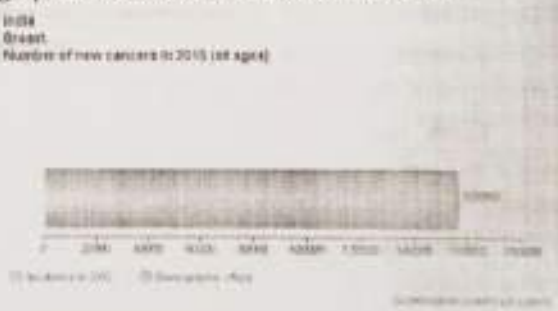


Total: 1 790 498

The estimated Breast Cancer Incidence, Mortality and Prevalence Worldwide in 2012 was 522 in 1671 cases .

In india it was 70 in 145 .

As on GLOBOCAN 2012 (IARC) - 27.2.2017 the graph of incidence in 2012 to till date was



Incidence

Incidence is the number of new cases arising in a given period in a specified population. This information is collected routinely by cancer registries. It can be expressed as an absolute number of cases per year or as a rate per 100,000 persons per year (see Crude rate and ASR below). The rate provides an approximation of the average risk of

International Conference on Recent Advances in Technology, Engineering and Science' July 2016(ICRATES-16)
ISBN: 978-93-5258-740-7

EFFECTIVE UTILIZATION OF ENERGY IN WBASN BY AVOIDING THE RETRANSMISSION OF SURPLUS DATA

Karthik J
Research Scholar, St Peters University,
Avadi, Chennai, India

Dr.A.Rajesh
professor, C.Abdul Hakeem College of Engineering And Technology

ABSTRACT:

With the help of recent development in wireless communication, it is possible to monitor the human health remotely. There are so many key challenges in Wireless Body Area Sensor Networks (WBASN), one of the major issue is energy. Sensor nodes in the WBASN have only limited power. So the effective utilization of power is very much essential. In this paper we proposed conditional retransmission to reduce the energy consumption by the sensor nodes. The data will be retransmitted only when it is important, otherwise will omit it. By doing this the number of transmission will be reduced more, so that the life time of node and also life time of network will get increased.

Keywords: WBASN, Conditional Retransmission, Power, Network Lifetime.

I. INTRODUCTION

Nowadays Wireless Communication is becoming popular in order to simplify the work by remotely monitoring all the activities. It is possible to control everything remotely is encourages the human health is being monitored by wireless devices. The wireless devices used to monitor the human health is called body sensors.

Since the Body Sensors are very small in size, the batteries are used in body sensor is also very low power. This low power batteries are leads the system powerless very soon. We need to keep on changing the body sensors to actively monitor the human health. Body sensors may be fixed in and around the body, if the sensors are fixed inside the body it's highly risk to keep on changing the sensor nodes, so we need to reduce the energy consumed by the sensor nodes.

In this paper we have approached conditional retransmission technique to reduce the energy consumption of body sensor nodes. Nodes will monitor the human body and sense the values and send it to the access points, if the transmission failed then the nodes again resend the data, so body nodes are spending more energy for transmitting the data's. so we reduced the number of transmissions by conditional retransmission approach.

We have discussed about the introduction of WBASN in Chapter1, and chapter 2 contains literature survey that focuses the challenges of WBASN. Chapter 3 consists of brief note about our proposed conditional retransmission technique. In chapter 4 we have discussed about the conclusion of the proposed work and future work.

II. LITERATURE SURVEY

As discussed paper [1] the size of the sensor nodes must small in Wireless Body Area Sensor Networks. This size requirement will limit the size of the battery. That automatically leads to the very less lifetime of the sensor nodes and networks.

WBAN's focuses a huge number of research challenges such as energy consumption, scalability, reliability, etc. Communication Protocols helps to maximize the lifetime of the networks. It is important to maintain low transmit power to avoid the harmful impact of electromagnetic radiation on human body [2].

Energy consumption is reduced while keep all sensor nodes in sleep state except one or two nodes, from [3][4] one node will be actively monitor the human health, if it finds improper values then it makes all other nodes to sense the values. With this energy consumption is reduced more by On Demand Sleep Awake Algorithm [5].

We may also use energy management techniques reducing coverage area of certain nodes, power down the certain components in the node, etc [6]. Energy can be

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

This is to certify that ~~Dr. Prof. Mr.~~ Ms. APARNAA K S

PAAVAI ENGINEERING COLLEGE, NAMAKKAL

participated and presented a paper entitled ARDUINO BASED RAIL TRACK CRACK DETECTION WITH ZIGBEE

in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Arumugam

Convenor

Principal

Chairman

ADITHYA
INSTITUTE OF TECHNOLOGY
AIT
INDUSTRY INTEGRATED INSTITUTION
Sathy Main Road, Kurumbapalayam, Coimbatore - 641 107, Tamilnadu, India.
In Association with

Seventh Sense Research Group

SSRG

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that K. S. APARNAA of PAAVAI ENGINEERING COLLEGE has attended /presented a paper entitled "SCHEDULING COLLISION FREE PACKET IN UNDERWATER ACOUSTIC SENSOR NETWORK LOCALIZATION" in the International Conference on Emerging Trends in Engineering, Technology, Science and Management (ICET-2017) on 24th March 2017.

Principal

Editor SSRG Foundation

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. R. MADANACHITRAN of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled LOCALIZATION OF MULTIPLE SPOOFING ATTACKERS AT DIFFERENT POWER LEVELS IN WIRELESS NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ MADANA CHITRAN . R of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled MORPHOLOGICAL CHANGE DETECTION FRAMEWORK FOR SMART TRAFFIC SYSTEM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Arun

Principal

Chairman

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./Prof./Mr./Ms. ARULEESHWARI - R of

PANVEL ENGINEERING COLLEGE, NAVALKHAL participated and

presented a paper entitled MAP REDUCE ALGORITHM FOR BIG DATA APPLICATION

in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Panvel Engineering College on 17th and 18th March 2017.

Convener

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)
PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ RAJESH . S of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled USING DATA MINING TECHNIQUE FOR ADVERSE DRUG REACTION in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/Mr./~~Ms.~~ PRABAHARAN. P of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled SMART IRRIGATION CONTROL AND MONITORING SYSTEM USING IOT in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Recent Trends in Communication, Control, Signal and Image Processing Applications

MAHENDRA
COLLEGE OF ENGINEERING

(Approved by AICTE, Affiliated to Anna University & Accredited By NAAC)

Salem - Chennai Main Road, Minnampalli, Salem - 636106

MAHENDRA EDUCATIONAL INSTITUTIONS

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

RTCCSIPA'17

CERTIFICATE OF PARTICIPATION

This is to certify that Dr/Mr/Ms. REVATHI . M of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper titled PRIVACY BASED HEALTH CARE DATA IN CLOUD in the National Level Conference on "Recent Trends in Communication, Control, Signal and Image Processing Applications" on 31st March 2017.

31/03/17

Organising Secretary

Principal

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

(Approved by AICTE , New Delhi & Affiliated to Anna University, Chennai)
Deviyakurichi-636112, Attur (Tk), Salem (Dt), Tamil Nadu.
Ph: 04282-230199, Fax: 04282 - 230399, Mobile : 96551 44999
E-mail : bharathiyar@biew.ac.in, Website : www.biew.ac.in

ISTE & IETE Sponsored International Conference on
RESEARCH ADVANCES IN COMMUNICATION, COMPUTATION, ELECTRICAL SCIENCE AND STRUCTURES

Certificate

This is to certify that Ms./~~Mr.~~ REVATHI.M ASSISTANT PROFESSOR

of PAAVAI ENGINEERING COLLEGE

has Participated / Presented a paper in the title COMPARISON OF IRIS

DATABASE PERFORMANCE USING GIRIST.

in ISTE & IETE sponsored International Conference held on 25th March 2017.

Coordinator

Prof. S.Kumar
Vice-Principal, Convenor

Dr. R. Punidha
Principal, Chairperson

International Conference on Information Sciences and Renewable Energy Sources

"ICISRES-17"

Certificate of Participation

This is to certify that

V. Mahes Kumar
participated the
International Conference on
Information Sciences and Renewable Energy Sources
"ICISRES-17"
and presented the paper entitled

Adaptively Secure Broadcast Encryption with Constant Cipher texts.

C.NO:SCT/ICISRES-17/CS097

P. Manimekalai

Dr.P.Manimekalai
CONVENER

Prof.Dr.R.Prabhu
CHAIRPERSON

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution
Namakkal-637003,Tamilnadu,India.

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. SIVARANJANI . M of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled RADIO FREQUENCY IDENTIFICATION (RFID) FOR TRACKING BAGS : A SURVEY in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

International Conference on Advances in Robotics, Energy and Network Systems 2017

Certificate of Appreciation

This is to certify that Dr. R. ARANGASAMY, PROFESSOR / ECE
PAAVAI ENGINEERING COLLEGE, NAMAKKAL
has participated in the International Conference on Advances in Robotics, Energy and Network Systems held in Government College of Engineering, Salem during 9-10th March 2017 and managed conference sessions as the Session Chair.

We wish him/her a grand success in all future endeavors.

Prof. Dr. M. Chandrasekaran,
General Chair, ICARENS 2017.

Prof. Dr. J. Lakshmana Perumal,
PRINCIPAL

K S R INSTITUTE FOR ENGINEERING AND TECHNOLOGY

TIRUCHENGODE-637215.

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

KSRIET
Where future begins

ICR TEC

In association with

In association with

ICT ACADEMY

INTERNATIONAL CONFERENCE ON
RECENT TRENDS IN ENGINEERING AND TECHNOLOGY'17

PARTICIPATION

This is to certify that ~~Mr./Ms.~~ Dr. N. ANGAIYARKANNI *of* PAAVAI ENGINEERING COLLEGE *has presented a paper titled* AUTOMATED BLOOD BANK SYSTEM USING UTLP *in the* ECE *track of International Conference on Recent Trends in Engineering and Technology'17 (ICRTET'17) held on 17th March 2K17*

Conference chair

Principal

ADITHYA
INSTITUTE OF TECHNOLOGY
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai
AIT
Adithya Institute of Technology
INDUSTRY INTEGRATED INSTITUTION
Sathy Main Road, Kurumbapalayam, Coimbatore - 641 107, Tamilnadu, India.
In Association with

SSRG

Seventh Sense Research Group™

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that S. VIJAYA KUMAR Associate Prof *of* PAAVAI ENGINEERING COLLEGE *has attended /presented a paper entitled "* AN FAULT ISOLATION SHARED BUFFER TECHNIQUE FOR NOC *" in the International Conference on Emerging Trends in Engineering, Technology, Science and Management (ICETT-2017) on 24th March 2017.*

Principal

Editor SSRG Foundation

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. SAMUNDEESWARI . A , of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled AUTOMATIC NOISE CANCELLATION IN AUDIO RECEIVER AND BLUETOOTH DEVICE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

K S R INSTITUTE FOR ENGINEERING AND TECHNOLOGY

TIRUCHENGODE-637215.

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

KSRIET
Where future begins

ICR TEC

In association with

In association with

ISTE

ICT ACADEMY
Innovate... Collaborate... Educate...

INTERNATIONAL CONFERENCE ON
Recent Trends in Engineering and Technology'17

PARTICIPATION

This is to certify that ~~Mr./~~Ms. M. SUDHA, AP/ECE of PAAVAI ENGINEERING COLLEGE has presented a paper titled AUTOMATED BLOOD BANK SYSTEM USING UTLP in the ECE track of International Conference on Recent Trends in Engineering and Technology'17-ICRTET'17 held on 17th March 2K17

Principal

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/~~Mr.~~/Ms. SANGEETHA . E of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled A MODIFIED ANSI 21 BAND 1/3 OCTAVE FILTER BANK FOR DIGITAL HEARING AIDS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/~~Mr.~~/Ms. SANGEETHA. E of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled A NEW HIGH SPEED AND ENERGY EFFICIENT OF CARRY SKIP ADDER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Ayyub
Convenor

Principal

Chairman

AIT
Adithya Institute of Technology

ADITHYA
INSTITUTE OF TECHNOLOGY
INDUSTRY INTEGRATED INSTITUTION

Sathy Main Road, Kurumbapalayam, Coimbatore - 641 107, Tamilnadu, India

In Association with

SSRG

Seventh Sense Research Group™

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that V. SAKTHIVEL Asst. Prof of PRAVAI ENGINEERING COLLEGE has attended /presented a paper entitled " HYBRID APPROXIMATE LOGIC FOR FIELD PROGRAMMABLE CUSTOM DESIGN " in the International Conference on Emerging Trends in Engineering, Technology, Science and Management (ICETT-2017) on 24th March 2017.

Principal

Editor SSRG Foundation

AIT
Adithya Institute of Technology

ADITHYA
INSTITUTE OF TECHNOLOGY
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai
INDUSTRY INTEGRATED INSTITUTION
Sathy Main Road, Kurumbapalayam, Coimbatore - 641 107, Tamilnadu, India

In Association with

SSRG

Seventh Sense Research Group™

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that V. SAKTHIVEL Asst. Prof *of* PADVAI ENGINEERING COLLEGE *has attended /presented a paper entitled "* AN EFFICIENT FAULT MITIGATING PROCESSOR USING LOW COST TPG *" in the International Conference on Emerging Trends in Engineering, Technology, Science and Management (ICET-2017) on 24th March 2017.*

Principal

Editor SSRG Foundation

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution

Namakkal - 637 003, Tamilnadu, India.

C.No.: SCT/ECE/2017/ICESIC/076

2nd INTERNATIONAL CONFERENCE ON ELECTRONICS SIGNAL INTEGRITY AND COMMUNICATION

ICESIC'17

Organized by

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

This is to certify that

A.KUMARAVEL AP/ECE

PAAVAI ENGINEERING COLLEGE

has presented a paper entitled

INCREASED RANGE IN POWER TRANSMISSION VIA WIRELESS

in the 2nd International Conference on Electronics Signal Integrity & Communication "ICESIC'17" held on 9th & 10th March 2017.

Prof.R.Loganasu
COORDINATOR

N. Padmapriya
Prof.N.Padmapriya
CONVENOR

Prof.Dr.R.Prabhu
PRINCIPAL

Technically sponsored by

IETE

IEEE

Tamilnadu College of Engineering

(Affiliated to Anna University), Karumathampatti, Coimbatore - 641 659, Tamilnadu, India.

In Association with

Seventh Sense Research Group™

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that A · KUMARAVEL of PAAVAI ENGINEERING COLLEGE has attended /presented a paper entitled "AN BAIT BASED BACKPRESSURE ROUTING FOR MANET" in the **International Conference on Engineering Humanities & Science (ICEHS-2017)** on **5th May 2017.**

Principal

Editor
SSRG International Journals

Paper ID: II-RAMSITLY-22027-5465

INTERNATIONAL INSTITUTE OF ENGINEERS AND RESEARCHERS

International Conference on
Recent Advances in Medical Science

Certificate

This is to certify that A.Kumaravel has presented a paper entitled "A Novel Method for Security Enhancement in Manet" at the International Conference on Recent Advances in Medical Science (ICRAMS) held in Venice, Italy on 22nd-23rd February 2017.

Chairman
International Institute of Engineers & Researchers

College Of Engineering and Technology

ICRTES'2017

International Conference on Recent Trends in Engineering Sciences 2017

REF No....ICRTES.107.....

Certificate

This is to certify that .....MOHANAPRIYA. R..... *from*

.....PAAVAI ENGG. COLLEGE..... *has*

participated and presented a paper titled .....OPTIMIZATION OF.....

HANDOVER PARAMETERS IN LTE NETWORKS.....

in the International Conference on Recent Trends in Engineering Sciences (ICRTES 2017)

held at **VETRI VINAYAHA COLLEGE OF ENGINEERING AND TECHNOLOGY,** *Trichy,*

India on 25.03.2017.

PRINCIPAL

EDITOR -IN-CHIEF

M.P.NACHIMUTHU M.JAGANATHAN ENGINEERING COLLEGE

An ISO 9001:2008 CERTIFIED INSTITUTION

FS 558356
ISO 9001 : 2008

Sudhanandhen Kalvi Nagar,
Chennimalai, Erode - 638 112, Tamilnadu.
E-mail : mpnmjec@mpnmjec.ac.in Visit us at : www.mpnmjec.ac.in

"Udyog Rattan"
Thiru. J. SUDHANANDHEN B.Sc.
Founder

"Bharat Vidya Shiromani"
Dr. VASANTHA SUDHANANDHEN M.J
Correspondent

SECOND INTERNATIONAL CONFERENCE ON ADVANCEMENTS IN SCIENCE, ENGINEERING, TECHNOLOGY & MANAGEMENT - 2017 (ICASETM '17)

CERTIFICATE

This is to certify that ~~Dr~~ / ~~Mr~~ / ~~Ms~~ / Mrs. R. MOHANAPRIYA, AP, ECE

of Paavai Engineering College, Namakkal.

has presented a paper titled Multiple Attribute Decision Making for Hybrid Homogeneous Wireless Network.

in the International Conference on Advancements in Science, Engineering, Technology & Management - 2017 (ICASETM '

organized by Departments of Civil, CSE, ECE, EEE, Mechanical, IT, MBA, MCA & S&H on 25th March 20

Dr. R. Kavidha	*Dr. K.G. Parthiban*	*Dr. Vasantha Sudhanandhe*
Organizing Secretary	Vice Principal	Correspondent

K S R INSTITUTE FOR ENGINEERING AND TECHNOLOGY

TIRUCHENGODE-637215.

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

KSRIET
here future begins...

ICR TEC

n association with

In association with

INTERNATIONAL CONFERENCE ON

Recent Trends in Engineering and Technology'17

PARTICIPATION

This is to certify that Mr./Ms. R. MOHANAPRIYA, AP/ECE *of* PAAVAI ENGINEERING COLLEGE *has presented a paper titled* PATIENT MONITORING SYSTEM USING WIRELESS ENABLED DEVICES *in the* ECE *track of International Conference on Recent Trends in Engineering and Technology'17-ICRTET'17 held on 17th March 2K17*

Conference Chair

Principal

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/Mr./~~Ms.~~ VIJAYA KUMAR. S of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled MULTIDISCIPLINARY ALGORITHM FOR SPEED CONTROL OF INDUCTION MOTOR USING CLOUD COMPUTING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ VIJAYA KUMAR . S of PAAVAI ENGINEERING COLLEGE participated and presented a paper entitled A MODIFIED SHAPE FEATURE AUTHENTICATION SYSTEM FOR EAR BIOMETRICS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Anand

Convenor

Principal

Chairman

New Heights Old Traditions

TAMILNADU COLLEGE OF ENGINEERING

(APPROVED BY AICTE & AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

COIMBATORE - 641659

Department of Electronics and Communication Engineering

ETCCI' 17

6th national conference on

Emerging Trends in Computer Communication and Informatics

This is to certify that ~~Dr./~~Mr./~~Ms.~~....S...VIJAYA.KUMAR.....of ...PAAVAI.....ENGINEERING...COLLEGE.....has Participated and Presented a Paper titled .....SMART...SENSING.....BASED....ON.....INTERNET...OF.... ....THINGS..... in ETCCI' 17 held on 24th March 2017 at TAMILNADU COLLEGE OF ENGINEERING,COIMBATORE

Prof.G.Divya Mohana Priya	Mrs.T.Arachelvi	Dr.K.Sampathkumar	Dr.M.Karthikeyan
CONVERNOR	HOD-INCHARGE	VICE-PRINCIPAL	PRINCIPAL

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ VIJAYAKUMAR.S of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled AIR POLLUTION MONITORING SYSTEM USING ZIGBEE IN INDUSTRY AREAS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

New Heights Old Traditions

TAMILNADU COLLEGE OF ENGINEERING

(APPROVED BY AICTE & AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

COIMBATORE - 641659

Department of Electronics and Communication Engineering

ETCCI' 17

6 th national conference on

Emerging Trends in Computer Communication and Informatics

This is to certify that ~~Dr./Mr.~~/Ms. P. KRISHNA SIDHA of PAAVAI ENGINEERING COLLEGE has Participated and Presented a Paper titled GSM BASED LPG LEVEL MONITERING AND DETECTION SYSTEM in ETCCI' 17 held on COLLEGE OF ENGINEERING,COIMBATORE

Prof.G.Divya Mohana Priya	Mrs.T.Arachelvi	Dr.K.Sampathkumar	Dr.M.Karthikeyan
CONVERNOR	HOD-INCHARGE	VICE-PRINCIPAL	PRINCIPAL

TAMILNADU COLLEGE OF ENGINEERING

(APPROVED BY AICTE & AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

COIMBATORE - 641659

New Heights Old Traditions

Department of Electronics and Communication Engineering

ETCCI' 17

6 th national conference on

Emerging Trends in Computer Communication and Informatics

This is to certify that Dr./Mr./Ms.....P. KRISHNASUDHA.....of ....PAAVAI....ENGINEERING...COLLEGE.....has Participated and Presented a Paper titled ...COMMUNICATION...BETWEEN...ABB.DCS...to...STE...MEMS..... ...DCS...USING...OPC....COMMUNICATION...TECHNIQUE in ETCCI' 17 held on 24th March 2017 at TAMILNADU COLLEGE OF ENGINEERING,COIMBATORE

Prof.G.Divya Mohana Priya	**Mrs.T.Arachelvi**	**Dr.K.Sampathkumar**	**Dr.M.Karthikeyan**
CONVERNOR	HoD-INCHARGE	VICE-PRINCIPAL	PRINCIPAL

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/~~Mr.~~/Ms. VANAJA . C of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled SMOOTH AND EFFICIENT WIFI BASED INTERNET ACCESS FROM MOVING VECHICLES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. [signature]
Convenor

[signature]
Principal

[signature]
Chairman

KSRIET
Where future begins...

K S R INSTITUTE FOR ENGINEERING AND TECHNOLOGY

TIRUCHENGODE-637215.

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

ICRTET

In association with

In association with

ICT ACADEMY

INTERNATIONAL CONFERENCE ON

Recent Trends in Engineering and Technology'17

PARTICIPATION

This is to certify that Mr./Ms. C.VANATA, AP/ECE of PAAVAI ENGINEERING COLLEGE has presented a paper titled AUTOMATIC CT IMAGE SEGMENTATION OF THE LUNGS WITH SVM AIGORITHM in the ECE track of International Conference on Recent Trends in Engineering and Technology'17-ICRTET'17 held on 17th March 2K17

Conference Chair

Principal

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs S.SATHEESHKUMAR. Presented the Paper on COMPLETE VEHICLE PROTECTION USING ATMEGA MICROCONTROLLER during the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia,

Organizer

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs C.GANESH Presented the Paper on A NOVEL APPROACH FOR FUSION OF LOW RESOLUTION MULTISPECTRAL IMAGE IN REMOTE during SENSING.

the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' Dr.M.S.Mathivanan
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia.

Organizer

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs C.GANESH Presented the Paper on A NOVEL APPROACH FOR FUSION OF LOW RESOLUTION MULTISPECTRAL IMAGE IN REMOTE during SENSING.

the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia.

[redacted] Organizer

International Conference on Information Sciences and Renewable Energy Sources

"ICISRES-17"

Certificate of Participation

This is to certify that

Mr. S. Loganathan

participated the International Conference on Information Sciences and Renewable Energy Sources "ICISRES-17" held on 2nd & 3rd March 2017

and presented the paper entitled

Automatic Number Plate Recognition Security System Using EDGE Detection

C.NO:SCT/ICISRES-17/EE102

P. Manimekalai

Dr.P.Manimekalai
CONVENER

SELVAM COLLEGE OF TECHNOLOGY

Prof. Dr.R.Prabhu
CHAIRPERSON

Selvam College of Technology

Accredited by NAAC with "B+" Grade | UGC Recognized 2(f) Status | An ISO 9001:2008 Certified Institution
Namakkal-637003, Tamilnadu, India.

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs G. NANDHAKUMAR Presented the Paper on COMPLETE VEHICLE PROTECTIONAL USING ATMEGA MICROCONTROLLER during

the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia.

[redacted] **Organizer**

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs P. JOHN VIVEK APIECE Presented the Paper on Multilevel Dapped Based Context Analysis In Pulmonary Nodule during the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivanésan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia,

[redacted] **Organizer**

SSM

AC Tech, Chennai

MYMOBILEUNIVERSITY

LTT GLOBAL COMMUNICATIONS
Global Pioneer in Mobile Learning

APAC mobile Learning & edutainment
ADVISORY PANEL

[redacted]

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr / Mr/ Mrs P. JOHN VIVEK AP/ECE Presented the Paper on ROI Based Medical Image Epitomize Using SPeck And AAC during the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia,

[redacted] **Organizer**

SSM

AC Tech, Chennai

MYMOBILEUNIVERSITY
Future of Education

LTT GLOBAL COMMUNICATIONS
Global Pioneer in Mobile Learning

APAC mobile Learning & edutainment
ADVISORY PANEL

[redacted]

Global Learning Conference on Mobile Computing

Transforming Education, Transforming Lives

Certificate of Appreciation

We hereby Certify that

Dr/ Mr/ ~~Mrs~~ S. VIMALNATH Presented the Paper on COMPLETE VEHICLE PROTECTION USING ATMEGA MICROCONTROLLER during the Global Learning Conference on Mobile Computing 9th & 10th February 2017 at AC Tech, Anna University, Chennai, India.

'Cavalier' **Dr.M.S.Mathivanan**
Chairman, SSM College of Engineering,
Komarpalayam, Namakkal

Dr.S.Sivahesan
Dean, Alagappa College of Technology
Anna University, Chennai.

Wemel Cumavoo Veeran
Founder & CEO
LTT Global & My Mobile University, Malaysia.

[redacted] Organizer

K S R INSTITUTE FOR ENGINEERING AND TECHNOLOGY

TIRUCHENGODE-637215.

(APPROVED BY AICTE-NEW DELHI, AFFILIATED TO ANNA UNIVERSITY-CHENNAI)

n association with

In association with

INTERNATIONAL CONFERENCE ON
Recent Trends in Engineering and Technology'17

PARTICIPATION

This is to certify that Mr./Ms. N. THENNARASU. *of* PAAVAI ENGINEERING COLLEGE *has presented a paper titled* PATIENT MONITORING SYSTEM USING WIRELESS ENABLED DEVICES *in the* ECE *track of International Conference on Recent Trends in Engineering and Technology'17 held on 17th March 2K17*

Conference Chair

Principal

M.P.NACHIMUTHU M.JAGANATHAN ENGINEERING COLLEGE

An ISO 9001:2008 CERTIFIED INSTITUTION

FS 558356
ISO 9001 : 2008

Sudhanandhen Kalvi Nagar,
Chennimalai, Erode - 638 112, Tamilnadu.
E-mail : mpnmjec@mpnmjec.ac.in Visit us at : www.mpnmjec.ac.in

"Udyog Rattan"
Thiru. J. SUDHANANDHEN B.Sc.
Founder

"Bharat Vidya Shiromani"
Dr. VASANTHA SUDHANANDHEN M.J
Correspondent

SECOND INTERNATIONAL CONFERENCE ON ADVANCEMENTS IN SCIENCE, ENGINEERING, TECHNOLOGY & MANAGEMENT - 2017 (ICASETM '17)

CERTIFICATE

This is to certify that ~~Dr~~ / ~~Mr~~ / ~~Ms~~ / Mrs. K. NITHYA.

of Paavai Engineering College, Namakkal

has presented a paper titled Multiple Attribute Decision Making for Hybrid Heterogeneous Wireless Network.

in the International Conference on Advancements in Science, Engineering, Technology & Management - 2017 (ICASETM'

organized by Departments of Civil, CSE, ECE, EEE, Mechanical, IT, MBA, MCA & S&H on 25th March 20

Dr. R. Kavidha	*Dr. K.G. Parthiban*	*Dr. Vasantha Sudhanandhe*
Organizing Secretary	Vice Principal	Correspondent

ADITHYA
INSTITUTE OF TECHNOLOGY
INDUSTRY INTEGRATED INSTITUTION
Sathy Main Road, Kurumbapalayam, Coimbatore - 641 107, Tamilnadu, India.
In Association with

SSRG

Seventh Sense Research Group™

Chennai Division, Website: www.internationaljournalssrg.org

Certificate

This is to certify that K. BASKAR. of PAAVAI ENGINEERING COLLEGE has attended /presented a paper entitled " AN EFFICIENT FAULT MITIGATING PROCESSOR USING LOW COST TPG " in the International Conference on Emerging Trends in Engineering, Technology, Science and Management (ICET-2017) on 24th March 2017.

Principal

Editor SSRG Foundation

COMPARATIVE STUDY OF NANOCRYSTALLINE FOR GAS SENSOR APPLICATION

R.Priyanka[1], Dr.B.Murali Babu[2]

[1] P.G. Student, Department of EEE [2] Professor, Department of EEE
Paavai Engineering College (Autonomous), 1priyankarajasingampec@paavai.edu.in, 2coe@paavai.edu.in

Abstract: Abstract— Gas exposure instruments are increasingly desired for industrial health and safety, environmental monitoring, and process control. To meet this demand, nanosized gas sensor elements are potentially faster, require lower power, operate at lower temperatures, and also identify low-level gas leakage. Numerous materials have been available for metal oxide sensors including both single- (e.g., ZnO, SnO2, WO3, TiO2, and Fe2O3) and multi-component oxides (e.g., BiFeO3, MgAl2O4, SrTiO3, and Sr1-yCayFeO3-x). The nanocrystalline SnO2, WO3, ZnO have sensing property and that nanoparticles have been prepared by diverse techniques like microwave hydrothermal method, vapor deposition, hydrothermal route, sol–gel, acidification method and electrodeposition method. By this comparative study, the article explains that WO3 has better sensing property than other nanoparticles and microwave irradiation technique is best and low cost for the successful preparation of nanocrystalline for gas sensor.

Keywords— ZnO, Tungsten oxide, Microwave irradiation, Sol-Gel.

1. INTRODUCTION

Over the past five decades, there has been an increasing demand for inexpensive, accurate, portable and reliable gas sensors that can discriminate between very low concentrations of analytes. Typically, gasses of interest include CO, NO, NO2, NH4, SO2, CO2, CH4 and other hydrocarbons. These gasses can be harmful to human health if present beyond a certain concentration. Metal oxide semiconductor gas sensors have fascinated a lot of attention due to their cheap and easy-to-use gas monitoring capabilities. It is consist of three main components sensing material, electrodes, and a heater. The commonly used sensing materials include SnO2, WO3, ZnO or In2O3 [1]. Gas sensors can be categorized based on the detection mechanisms complicated and the type of materials used in their fabrication. They may be based on a wide variety of detection mechanisms, such as changes in optical absorption or fluorescence [2] modulation of the field in field-effect transistors [3], changes in surface acoustic wave propagation [4], electrochemical phenomena (e.g. voltage changes in potentiometry [5,6] or current change in amperometry [7]) and, resistance changes in metal oxide semiconductors (MOSs) [8]. In terms of gas sensor materials, metal wires and films were employed as sensing elements in some of the very first gas sensors, but polycrystalline MOSs dominate gas sensor construction today.

The measuring principle of the gas sensors we focus on in this contribution is that of electrical conductivity changes of heated MOS layers as a function of the composition of gasses present in the atmosphere surrounding the sensing element. The MOS gas-sensing materials are typically n-type semiconductors that under normal atmospheric conditions and typical working temperatures of 300–600ºC develop an electron-depleted surface layer. Gas sensing properties of hierarchical nanostructures from metal oxides have been comprehensively reviewed [9]. To date, the synthesis of hierarchical nanostructures from metal oxides can be classified into three categories. The first method involves high thermal evaporation of precursor powders accompanied by a low-temperature condensation. One-step and multi-steps of the thermal evaporation processes have been employed in the synthesis of different hierarchical nanostructures such as ZnO–ZnO [10–13], ZnO–SnO2 [9], SnO2–SnO2 [14, 15], and ZnO–In2O3 [16], and WO3 [13, 17–19]. The second technique is a wet-chemical route, which is simple, environmentally friendly, operated low-temperatures, inexpensive, and products high-throughput [8, 11, and 12]. The third option is a

INVESTIGATION OF BACK TO BACK CONNECTED DIODE CLAMPED MULTILEVEL CONVERTERS

G.Priya[1], Dr.A.Rathinam2

[1]1 P.G Student, Department of EEE - Professor, Department of EEE
Paavai Engineering College(autonomous) 1Priyadude6107@gmail.com, 2Rathnam2020@gmail.com

Abstract: This paper describes the design and implementation of five level back to back connected diode clamped multilevel converter. In the proposed multilevel converter, a number of energy storage capacitor, lack of multiple isolated DC power supplies is avoided. Which is eliminating the problems of low input power and high total harmonic distortion in input current compared with conventional converter? The presented topology is suitable for AC motor drive and utility application. New topology requires only (N-1) switching devices and (N-3) clamping diode compared to existing topology. A modified APO-PWM control method is used to generate gate pulses for converter. The validity of proposed system are verified by prototype computer aided simulation model

Keywords— Diode clamped Multilevel converter, APO-PWM, Total harmonic distortion.

1. INTRODUCTION

Multilevel converter is emerging as new breed of power converter topology for power conditioning applications. Multilevel power converters are classified basis of number of phases and power flow capability [1]. There are two classifications in the power converter one is single phase and three phases unidirectional multilevel power converters other one is single phase and three phase bidirectional multilevel power converters. In three and five level diode clamped multilevel converters are provide the important issue of unequal sharing of voltage in clamp diode in diode clamped multilevel converter with high number of levels.

The multilevel converter is implemented to many applications such as variable speed industrial electric drives, electric vehicles, and reactive power compensation in large distribution and transmission systems required bidirectional operation of the multilevel converters. The multilevel rectifier scheme is far superior to its counterpart 2-level rectifier and gives better performance like unity input power factor, negligible input current THD, reduced rippled regulated load voltage at a lower switching frequency and reduced voltage stress of the power semiconducting devices. These benefits of multilevel rectifier over conventional rectifier make multilevel rectifier a favorite choice as a DC source for multilevel inverters. This sort of connection of multilevel converters for AC-DC-AC conversion is commonly known as Back-to-Back Configuration (BTB) [2].The proposed back to back connected diode clamped converter provide four quadrant operation with inherent neutral point voltage balance and is most applied topology for ac drive and utility application. The proposed back to back connected diode clamped multilevel converter is most used topology as it require a number of energy storage capacitor, lack of multiple isolated DC power supplies when it is compared with flying capacitor and H-bridge cascaded topology.

The proposed converter MOSFET power modules are used with high power rating and low conduction loss. This power module is high voltage and high frequency Sic devices. Control strategy of multilevel power converter is heart of the whole system. The basic aim of the control is to produce multilevel voltage with good spectral quality. The back to back connected diode clamped multilevel converter is used APO-PWM which produce date signal for converter.

Objective of five level converters:

The most attractive features of a multilevel inverter are as follows:

- They can generate output voltages with extremely low distortion and lower dv/dt.
- They draw input current with very low distortion.
- They generate smaller common-mode (CM) voltage.
- They can operate with a lower switching frequency

EFFECTIVE POWER GENERATION FROM FOOT STEP AND UTILIZATION USING EFFICIENT DC-DC BOOST CONVERTER

Vignesh.S[1], Vinothkumar.G[2],Palmani.D[3],

1.2U.G , Student, Department of EEE, Paavai Engineering College, Namakkal-Anna University, Chennai.
3.Assistant Proffessor, Department of EEE, Paavai Engineering College, Namakkal-Anna University, Chennai.
3palmaniduraipgi@paavai.edu.in

Abstract: In this project we are generating electrical power as non-conventional method by simply running on the train in the foot step. Non-conventional energy system is very essential at this time to our nation. Non-conventional energy using foot step needs no fuel input power to generate the output of the electrical power. This project using simple drive mechanism such as rack and pinion assemble and chain drive mechanism. For this project the conversion of the force energy in to electrical energy. To getting the electric energy that should be used boost converter to convert the low energy into high energy. The control mechanism carries the rack & pinion, D.C generator, battery, boost converter, inverter control. We have discussed the various applications and further extension also. So this project is implemented to all foot step, the power generation is very high. The initial cost of this arrangement is high. .

1. INTRODUCTION

In Recent Years, wide use of electrical equipment has forced strict demands for electrical utilizing energy and this development is constantly growing. Accordingly, researchers and governments worldwide have prepared on renewable energy applications for explanatory natural energy consumption and environmental location. However, without additional arrangements, the output voltages generated from both sources. Thus, a high step-up dc-dc converter is desired in the power conversion systems corresponding to these two energy sources.In addition to the mentioned applications, a high step-up dc-dc converter is also required by manyindustrial applications, such as high-intensity discharge lamp ballasts for automobile headlamps and battery backup systems for uninterruptible power supplies. The conventional boost converter can be advantageous for Step-up applications that do not demand very high voltage gain, mainly due to the resulting low conduction loss and design simplicity. Theoretically, the boost converter static gain tends to be infinite when duty cycle also tends to unity. However, in ractical terms, such gain is limited by the I2R loss in the boost inductor due to its intrinsic resistance, leading to the necessity of accurate and high-cost drive circuitry for the active switch, mainly because great variations in the duty cycle will affect the output voltage directly. To achieve a high step-up voltage ratio, transformer- and coupled-inductor-based converters are usually the right choices. Compared with an isolation transformer, a coupled inductor has a simpler winding structure, lower conduction loss, and continuous conduction current at the primary winding, resulting in a smaller primary winding current ripple and lower input filtering capacitance. Thus, a coupled-inductor based converter is relatively attractive because the converter present low current stress and low component count. However, for applicationswith low input voltage but high output voltage, it needs a high turn's ratio, and its leakage inductor still traps significant energy, which will not only increase the voltage stress of the switch but also induce significant loss. A resistor–capacitor diode snubber can alleviate the voltage stress of the switch, but the energy that is trapped in the leakage inductor is dissipated. In the converters that are operated in discontinuous-conduction-mode boundary canreduce voltage stress. However, they will result in high input current ripple and require relatively large input and output filters. A passive losslessclamped circuit can recover the energy that is trapped in the leakage inductor andreduce voltage spike, but the active switch is still in hard switching. The additional snubbers are required to reduce the voltage stresses of switches. In order to raise the

AN EFFICIENT DFIG SYSTEM USING UPFC

K.Ramamoorthi[1], Dr.G.Balaji[2]

1 PG Scholar Paavai Engineering College, Pachal, Namakkal
2 Professor, Department Of Electrical And Electronics Engineering,
ramamoorthik@gmail.com1, rahullaagi@gmail.com2

Abstract–This paper presents windpower generations have been growingrapidly all over the world and have become one of themost promising renewable generation technologies This paper presents an UPQC control and independent operation of therotor-side converter (RSC) and grid-side converter (GSC) for adoubly fed induction generator (DFIG)-based wind energy conversionsystem under unbalanced grid voltage conditions .The proposed method canmake theRSC andGSC available to an independent operation witha simple implementation for higher reliability with UPQC control. Four-wire Unified Power Quality (UPQC) to improve power quality of windenergy conversion system (WECS). The UPQC is realized by the integration of series and shunt active power filters (APF) sharing a common dc bus capacitor the experimentalresults demonstrate the effectiveness of the proposed control strategy for both the RSC and GSC under unbalanced grid voltageconditions.

Index Terms–Doublyfed induction generator (DFIG), unbalanced grid voltage, independent operation, resonant regulator, wind energy conversion system (WECS).

I. INTRODUCTION

Wind turbines use a doubly-fed induction generator (DFIG) consisting of a wound rotor induction generator and an AC/DC/AC IGBT-based PWM converter. The stator winding is connected directly to the 50 Hz grid while the rotor is fed at variable frequency through the AC/DC/AC converter. The DFIG technology allows extracting maximum energy from the wind for low wind speeds by optimizing the turbine speed, while minimizing mechanical stresses on the turbine during gusts of wind. The optimum turbine speed producing maximum mechanical energy for a given wind speed is proportional to the wind speed. Another advantage of the DFIG technology is the ability for power electronic converters to generate or absorb reactive power, thus eliminating the need for installing capacitor banks as in the case of squirrel-cage induction generator.

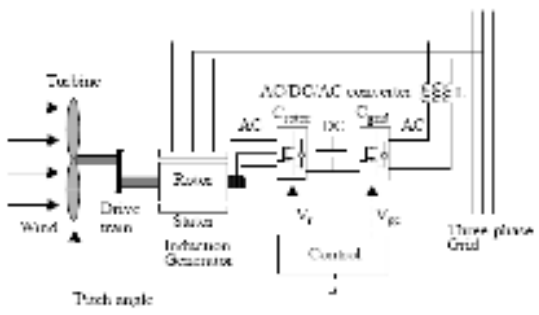


Fig.1 Basic diagram of doubly fed induction generator with converters.

WhereVr is the rotor voltage and Vgc is grid side voltage. The AC/DC/AC converter is basically a PWM converter which uses sinusoidal PWM technique to reduce the harmonics present in the wind turbine driven DFIG system. Here Crotor is rotor side converter and Cgrid is grid side converter. To control the speed of wind turbine gear boxes or electronic control can be used.

An AC-DC-AC converter is included in the induction generator rotor circuit. The power electronic converters need only be rated to handle a fraction of the total power –the rotor power – typically about 30% nominal generator power. Therefore, the losses in the power electronic converter can be reduced, compared to a system where the converter has to handle the entire power, and the system cost is lower due to the partially-rated power electronics. This chapter will introduce the basic features and normal operation of DFIG systems for wind power applications basing the description on the standard induction generator. Different aspects that will be described include their variable-speed feature, power converters and their associated control systems, and application issues.

Control and operation of DFIG systems during network unbalance were studied in [8]–[11]. However, in [8] and [9], the control and operation of the generator itself was not addressed, and the focus was on controlling the grid side converter to provide similar functions as a STATCOM [12]. In [10], control of DFIG for compensating torque

POWER GENERATION SYSTEM USING SOLAR ENERGY AND ENERGY MEASUREMENT

S.Anandaraj[1],V.S.Priyadharshan[2],E.Naveen prabhu[3], G.Deivamani[4] ME (AP)

[1,2,3] U.G Student, Department of EEE, Paavai Engineering college, Namakkal-Anna University, Chennai

[4] Assistant Professor, Department of EEE, Paavai Engineering college, Namakkal-Anna University, Chennai,

[4]deivamaniganesenpec@paavai.edu.in

ABSTARACT

Nowaday's electricity is most needed facility for the human being. All the conventional energy resources are depleting day by day. So we have to shift from conventional to non-conventional energy resources. In this the combination of two energy resources is takes place i.e. solar energy. This process reviles the sustainable energy resources without damaging the nature. We can give uninterrupted power by using solar energy system. Basically this system involves the integration of two energy system that will give continous power. Solar panels are used for converting solar energy and are used for converting solar energy into electricity. This electrical power can utilize for various purpose. Generation of electricity will be takes place at affordable cost. This paper deals with the generation of electricity by using solar energy sources which leads to generate electricity with affordable cost without damaging the naturebalance.In this output can be calculated in the solar power measurement.

Index Terms- electricity, solar energy, solar power

I INTRODUCTION

Electricity is most needed for our day to day life. There are two ways of electricity generation eitherbyconventionalenergy resources or by non-conventionalenergyresources.Electrical energy demand increases in word so tofulfilldemandwe have to generate electrical energy. Now aday'selectricalenergy is generated by the conventional energyresourceslikecoal, diesel, and nuclear etc. The main drawback ofthesesourcesis that it produces waste like ash in coal powerplant,nuclearwaste in nuclear power plant and taking care of thiswastageisvery costly. And it also damages he nature. The nuclearwasteisvery harmful to human being also.Theconventional energy sources are depleting day by day. Soon it willbecompletelyvanishes from the earth so we have to find anotherwaytogenerate electricity. The new source should bereliable, pollution free and economical. The non-conventionalenergyresourcesshould be good alternative energy resources for the conventional energy resources. There are many non-conventional energy resources like geothermal, tidal, wind, solar etc. the tidal energy has drawbacks like it can only implemented on seashores. While geothermal energy needs very lager step to extract from earth. Solar and wind are easily available in allcondition. The non-conventional energy resources like solar, wind can be good alternative source. Solar energy has produce electrical energy in day time and summer season so we produced high level of power. Any season. Thisresource so helpful to peak time power demands is reduced to this power source. That any other one of source fails this source will keep generating to maintain to fulfill the electric energy inElectricity. And in good weather condition we can use solar sources combine.

II. SOLARENERGY RADIATION

Solar energy is that energy which is gets by the radiation of the sun. Solar energy is present on the earth continuously and in abundant manner. Solar energy is freely available. It doesn't produce any gases that mean it is pollution free. It is affordable in cost. It has low maintenance cost. Only problem with solar system it cannot produce energy in bad weather condition. But it has greater efficiency than other energy sources. It only need initial investment. It has long life span and has lower emission.

Solar energy has drawback that itcouldnotproduce electrical energy in rainy and cloudy season.

DESIGN OF SOLAR ENERGYSYSTEM

For design of the solar energy system we need to find the data as follows

ELECTRIC CAR USING SOLAR SYSTEM

C.T.Abirami[1] K.Jeevabharathi[2] R.Keerthana[3] S.Subanitha[4], P.Elakkiya[5]
[1234] U.G Research Scholar, Department of EEE, Paavai Engineering College
[5] Assistant Professor, Department of EEE, Paavai Engineering College,
[5]elakkiyaponnusamypec@paavai.edu.in

ABSTRACT *: In our ecosystem mostly Gasoline engine cars are used by the Homosapiens which have high cost of refueling that cause emission of Greenhouse gases. Nowadays we face problem of dwindling fuel resources for vehicles. In order to reduce the automotive emission we switchover from conventional energy to renewable energy. Dwindling fuel resource is the foremost reason to switchover hybrid electric vehicles from gasoline vehicles. This project Electric Cars is the way to alter the energy source. Electric Vehicles uses the VLSRA battery of 12V,33 amps for storing the energy that provides power to the motor. If the battery is charged fully the vehicle can run up to four hours. The vehicle is vary out of a Maruthi Omni Vehicle. The integrated circuit consists of solar module, buck-boost converter, charge controller, battery, driver circuit and motor rating 3HP,48V,2500W,3000rpm. This work is more beneficial in generating zero pollution, zero noise effect and fuel consumption. It is frequently engaged due to maintenance less.*

I. INTRODUCTION

The fossil fuels such as petrol and diesel are very expensive way to be extracted andutility. The major problem is green house effect caused due to this inflaming of fossil fuels where populous amount of CO2 will be discharge which cause of several problem. Solar vehicles depend on PV cells to convert light into electricity directly to drive the differential engine. The Solar Electric Car using solar system contains the solar panel, differential DC motor, charge controller, batteries, solenoid control, step down transformer, additional brushes and diode rectifier unit. A zero emission solar electricvehicle is governed by Photovoltaic/Electric Supply bymeans of solar panel and AC supply with storage of energy in batteries [1].The PV array has a particular predicate characteristic that can supply the maximum power to the load which is commonly called Maximum Power Point (MPP). To advance theability of the PV system, the MPP has to be wake and followed by rule the PV compartment to work at MPP operant voltage point, thus optimizing the performance of the electricity [2].

In order to make the vehicle move under light power consumption the sketch was conceived from point of view of a high ability, light high efficiency, and firm and stable transport with reduced costs and zero emission in its operation in the obtaining energy [3]. The vehicle is geld out of a 'Maruti Omni' by replacing its skill with a 3HP, 24V differential DC automobile. The electric supply to the engine is obtained from a battery set of 12v, 33A. Two panel each with a rating of 300Watts are attached to the top of the vehicle to grab the panelalignment and then it is controlled with the help of controller. This is used as a main source of energy to charge the battery. The household electric supply of 230V is reduced with a step down transformer to 24V and then it is converted it to DC with a rectifying unit to charge the battery. This is used as a backup source or auxiliary of energy to charge the battery. The Vehicle can be controlled and can matchup a speed of 45km/hr.

II. SYSTEM CONFIGURATION AND OVERVIEW

In this paper the configuration of the Solar Electric Vehicle system are composed by solar

HYBRID ELECTRIC CAR USING POWER CONTROLLERS

T.Nandagopal[1], D.Dharan chandar[2], S.Madheswaran[3], M.Manjunathan[4], R.Muthuprasanth[5]
[1]Assistant Professor, Paavai Engineering College, Taminadu, India
[2345]U.G Student, Department of EEE, Paavai Engineering College, Namakkal.
[1]gopalthangarajpec@paavai.edu.in

ABSTRACT

Our project is related with the design and fabrication of multiple input voltage controllers for renewable energy resources. The demand of renewable energy sources is increasing day by day because of the shortage of conventional energy resources and due to its several benefits and applications also renewable energy sources are clean and they are not harmful for our environment. Most of the electrical systems are supplied with one kind of energy source; we will design multiple input voltage controllers which take input from different renewable energy resources at same time and regulate the input voltage. The multiple input voltage controller is like a DC-DC converter which actually works as the step up or boost converter.

I INTRODUCTION

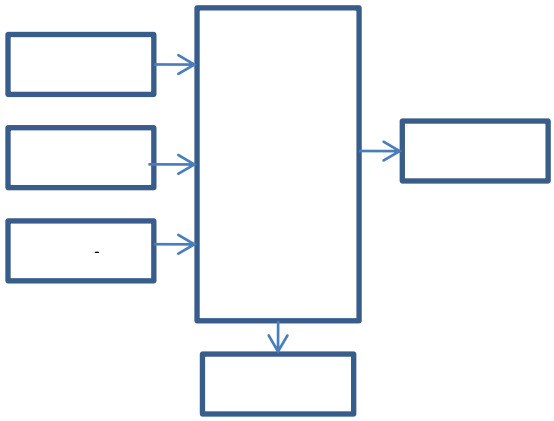
Design of multiple input charge controller is an efficient voltage conversion system for multiple inputs and combine output. Objective is designing of a system to extract multiple resources without mixing them with each other. Firstly it is Designed and Simulated in software like Proteus, MATLAB, code-Vision, Micro-C and then finally demonstrated in hardware form. This will include the design of a charge controller with variable frequency and variable duty cycle. Potential customers of this project could be individuals and organizations opting to implement hybrid renewable energy sources to feed a single load. This hardware is quite useful to operate household and industrial electronic devices directly from renewable energy sources eliminating converter losses of household and industrial electronic devices.

II CONTENTS

1. Block diagram of multiple input charge controller
2. Multiple input charge controller
3. Applications of n multiple input charge controller
4. Scope of multiple input charge controller
5. Selection multiple input charge controller
6. Working of multiple input charge controller
7. Components of multiple input charge controller
8. Inverter circuit of multiple input charge controller
9. Circuit diagram of multiple input charge controller

III BLOCK DIAGRAM OF MULTIPLE INPUT CHARGE CONTROLLER

This block diagram represents that the multiple inputs can be formed from renewable sources like batteries, wind mills and solar array etc. Furthermore their outputs are combined through a DC-DC converter and then this output is fed to load.



Block diagram

IV MULTIPLE INPUT CHARGE CONTROLLER

First we will design DC-AC converter which takes DC input from the renewable energy resources, then we will convert this DC input into AC through H-BRIDGE and use a transformer to provide isolation between input and output circuits and to step up the voltage level according to our demand, and we will be changing the duty cycle as well as

HYBID ELECTRIC CAR

Hariharan[2] A.Bharath[3]K.Sowmiya[4,] ,S.Manikandan[5]
[1234]U.G Research Scholar, Department of EEE, Paavai Engineering College, Namakkal
[5]Assistant Professor, Department of EEE,
[1]smanisidhu@gmail.com

ABSTRACT

The hybid vechicle technology and it is integration into participation. The encompassing beginning makeup for the project was weather hybrid experience the expectation for environmental benefits suggested by many societies. Research was done is the areas of types of hybrids, consumer trends and the futures of hybrid technology. Hybrid production and effectiveness data were analyzed to consider the technical aspects of the technology. A gather group of people who newly bought motor car, both hybrids and non-hybrid's, expose what consumer for in their vehicle. Analyses of the particular in hybrid technology favor regulate how feasible extensive alternator to hybrid would be in tomorrow. With all information taken into description, we extend that hybrid have several drawback that offset their full efficiency. Their higher price both transfer consumers away and make the vehicles a less alternative saving investment. Energy efficient process techniques need to be upgraded before the advanced materials in hybrids can prevents to their clean image. Widespread change to advanced hybrid technology is not practicable option in the near tomorrow because of both cost and the limited amount of hybrid on the road today. Overall hybrid technology has a lot of potential in the distant future, but as for right now they are not a significant improvement over today combustion engine.

1 INTRODUCTION

As the time being and technology support to develop the increasing presence of global warming and irreversible climate change attract increasing prefect concern from the global pollution. earth's climate source to transform, show by the frequent severe storms the active shrinking of polar freeze crown and highland glaciers, the increased amount of flooding in coastal areas, and longer droughts in hard layouts of the world. There are large holes in the ozone layer of the earth atmosphere and smog level are ever growing, guidance to reduced information quality2. It is accurate that natural causes as geothermal vents and volcanic hotspots are the part of the complete warming proposition but many of the effect are still begin the high quantities of greenhouse full that the world's population has generator in the by few centuries. It has only been within the past few decades that common place participation has absolutely taken consideration of these chances and decided that something necessary to develop if the global warming projection is to be down or ever slow this point in time. Countries around the working drastically decrease C02 emission as well as other harmful environment pollutants. Everything from cars and industries to livestock and check over are being learned and arrange with plans of minimizing pollution level.

Amongst the most observable producers of these pollution are automobiles, which are almost exclusively powered by intrinsic combustion engines and flow out unhealthy emissions. Cars and trucks are answerable for almost 25% of C02 issue, and other greater transmission methods recital for another 12.3% with a global population in 1 of six billion, and over 50% of whom reside in polite areas and builds on transmission to contribute to society. In the opinion of many, cars are a large contributor to polite pollution even and, in the bigger detail global warming. With large quantities of cars on the road today, pure burning engines are quickly becoming target of world-global warming fault. Internal combustion engine estimate for a lot of the pollution problems but the conclusion still stand as to what system will drive the next wave of automotive vehicles one moving choice to the world's resting on standard combustion engine vehicles are hybrid cars. Hybrids, preference their name hint, car vehicles that utilize multiple of fuel to government their engines.

In the extraction of modern hybrids, cars are powered by a combination of traditional gas energy and the increase of an electric motor. In this number of hybrid engine the combustion engine is used at high performance for long distances, such as the path, and the electric engine at light acceleration and short duration, such as in urban areas. By associated alternative energy drive trains into vehicles that also use combustion engines, while drive they are not completely well-clean, just cleaner than gasoline motor. This enables hybrid cars to have the powerful to segue into new technologies that admit precisely on alternate firing source. Just as hybrid engine are still being improved, alternate fuel based technologies are making advance emends as well.

The Automotive society are currently in production of closely electric cars along with along with many more designs that are still in the prototype stages alternative fuels, such as hydrogen natural gas and bio diesel are largely planned and explored in expect of widespread feature implementation into society however, many of these alternative fuels Wii require far too many resources worlds. Population to fully convert to within the near future, if at all; fuel cells would require a complete

ELECTRIC CAR USING GENERATOR

M.Deepak[1]P.Sundaravel[2] G.Vigneshkumar[3]S.Parameshwaran[4,] ,K.K.Poongodi[5]
[1234]U.G Research Scholar, Department of EEE, Paavai Engineering College, Namakkal
[5]Associate Professor, Department of EEE, Paavai Engineering College, Namakkal.
5poongodikandasamypec@paavai.edu.in

ABSTRACT

This paper proposed on ELECTRICALVECHICLE technology and it is integration into participation. The encompassing beginning makeup for the project was weather experience the expectation for environmental benefits suggested by many society. Research was done in the areas of types of hybrid, consumer trends and the futures of hybrid technology. Hybrid production and effectiveness data were analyzed to consider the technical aspects of the technology. A gather group of people who newly bought motor car, both hybridand non-hybrid's, expose what consumer for in their vehicle. Analysis of the particular in technology favor to regulate how feasible extensive alternator to hybrid would be in tomorrow. With all information taken into description, we extend that hybrid have several drawback that offset their full efficiency. Their higher price to transfer consumers away and make the vehicles a less alternative saving investment. Energy efficient process techniques need to be upgraded before the advanced materials in hybrids can prevents to their clean image. Widespread change to advanced hybrid technology is not practicable option in the near tomorrow because of both cost and the limited amount of hybrid on the road today. Overall hybrid technology has a lot of potential in the distant future, but as for right now they are not a significant improvement over today combustion engine.

1.1 INTRODUCTION

As the time being and technology support to develop the increasing presence of global warming and irreversible climate change attract increasing prefect concern from the global pollution. earth's climate source to transform, show by the frequent severe storms the active shrinking of polar freeze crown and highland glaciers, the increased amount of flooding in coastal areas, and longer droughts in hard layouts of the world. There are large holes in the ozone layer of the earth atmosphere and smog level are ever growing, guidance to reduced information quality. It is accurate that natural causes as geothermal vents and volcanic hotspots are the part of the complete warming proposition but many of the effect are still a begin the high quantities of greenhouse full that the world's population has generator in the by few centuries. It has only been within the past few decades that common place participation has absolutely taken consideration of these chance and decided that something necessary to develop if the global warming projection is to be down or ever slow this point in time. Countries around these are working drastically decrease C02 emission as well as other harmful environment pollutants. Everything from cars and industries to livestock and check over are being learned and arrange with plans of minimizing pollution level.

Our goal was to investigate the overall effect on the surrounding due to electric cars when compared to their competition. By comparing their manufacturing processes, their duty in present society, and consumer behavior towards them, we near a better understanding or electric vehicles and their effect on the environment. The result of analyzing the full life of a car, both from technical and consumer standpoints load a better approach with future change from combustion engine to never proportion system this paper includes our conclusions on how to best approach the future of electric cars both economically and resourcefully, and also gives our final verdict on the efficiency of the electric car,

MODELLING AND SIMULATION OF BUCK-BOOST INVERTER-BASED HVDC TRANSMISSION SYSTEM

V.Parthiban[1], G.Saravanan[2], P.Thangavel[3], G.Mariya Sundari[1], C.Gowri Shankar[2]
[1,2,3,4] *U.G Scholar*
[5]*Assistant Professor*
Department of Electrical and Electronics Engineering, Paavai Engineering College
[5]mariyasundaripec@paavai.edu.in

Abstract*—HVDC technology is enabling widespread use of offshore wind. Voltage-source converter-based-HVDC system has numerous advantages but most of VSCs are defenseless against dc-side faults, such as two-level VSCs, three-level VSCs and half-bridge modular multilevel converters. The Buck-Boost inverter-based-HVDC system has a means toovercome the limitations of the classical VSC-HVDC systems. BBI-HVDC system provides independent active and reactive power control in both directions. Performance of various types of HVDC converters like two-level VSI, three-level-VSI, half bridge modular multilevel converter, full bridge modular multilevel converter with buck-boost inverter are compared with simulation. Compared to other converters BBI has better performance in HVDC transmission system analysis. The analysis is based on the operation with immediately blocking of the IGBTs and source side tripping at the instant that the fault occurs. In BBI-HVDC system control of current despite the collapse of dc bus voltage is obtained. To improve the dynamic performance of BBI and to achieve complete blocking capability between ac grid and dc side faults the sliding mode controller is used. The BBI performance during normal and fault condition are observed in HVDC inverter side with grid system.*

Keywords—Voltage-Source Converter, Buck-Boost Inverter, PQ Controller, Sliding Mode Controller, THD, Fault condition.

INTRODUCTION

The VSC-HVDC converters of two-level inverter, three-level inverter, modular multilevel converter are used in this project to see their performance in HVDC [1]. Conventional voltage source converters (VSC) suffer from losses and are susceptible to faults, especially on the DC side. A new hybrid topology of multi-level converters provides the advantages of half-bridge multi-level converters as low distortion and low losses and of full H-bridge converters has mainly DC-side fault blocking capability [3]. In this topology, two stacks of H-bridge cells alternate between switching in and out of the circuit to construct the converter phase voltage using director switches composed of a number of IGBTs in series. The resulting converter generates AC current with low harmonic content and with low loss. Furthermore, the converter is still very responsive to faults. Analysis suggests that the topology is highly promising for a wide range of VSC applications. Simulations demonstrate good performance, including the capability of the converter to provide reactive power during severe abnormal conditions, even during a pole-to-pole DC-side fault [4]-[5]. The topology emerges as a good candidate for multi-terminal DC grids where the converter not only isolates a DC fault but also can offer support to the AC grid during the fault period. This may play a vital role in the evolution of future DC grids. After theVSC-HVDC in this project new BBI-based HVDC been introduced to check its performance in HVDC transmission system.The BBI-HVDC is explained in detailed here.

Comparison between various types of HVDC converters with Buck-Boost Inverter is the main objective of this paper. BBI should deliver the low THD level in the simulation results. The performance of BBI during normal and fault condition is checked [6].

HVDC CONVERTERS

Two-Level Inveretr

Three phase inverter is shown in fig.1 each switch conducts for 180º per cycle. IGBT pair in each arm i.e. T1, T4; T3, T6; and T5, T2 are turned on with a time interval of 180º. It means that T1 conducts for 180º and T4 conducts for next 180º of cycle. IGBT in the upper group conduct at an interval of 120º. It implies that if T1 is fired atωt=0º, then T3 must be fired at ωt=120º and T5 atωt=240º. The firing angles are same for lower group of IGBTs. In every step of 60º duration only three IGBTs are conducting one from upper group and two from lower group or two from the upper group and one from the lower group.

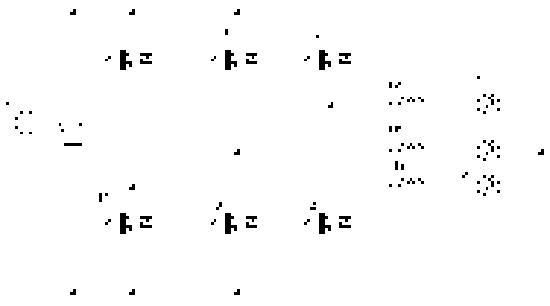


Fig. 1. Two-Level Inverter

Three-Level inverter

EFFECTIVE POWER STORAGE USING CHARGE CONTORLLER IN SOLAR POWER SYSTEM

K.Perumal[1], M.Sabari[2], A.Arun Prakasam[3], B.Shalini[4], Mr.R.Duraisamy[5]
[1,2,3,4] U.G Student, Department of EEE, Paavai Engineering college
[5]Assistant Professor, Department of EEE, Paavai Engineering College,
[5]durairangasamypgi@paavai.edu.in

ABSTRACT

Solar energy is the renewable energy. It can be used for generate power by solar thermal conversion and solar electric conversion. Solar power can be integrated into the grid by the help of Battery Energy Storage System. The output of a grid tied solar power generation which is a distributed resource can change very quickly. Real and reactive power can be absorbed and delivered by the photovoltaic systems with very few response times. Solar Panel of 250 watts is considered andthe battery capacity decreases by the increasing charging times and the increasing terminal voltage difference causes the inaccurate measurement of the capacity of battery. PV modules and back up battery are connected to a DC link through DC- AC converter.

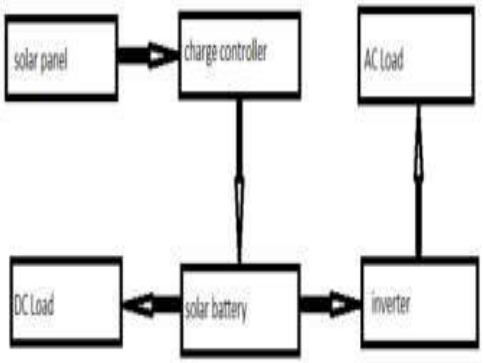
Key words- Power Inverters, PCS, Solar panel, Converter

I INTRODUCTION

Among all renewable energy resources, energy harvesting from the solar photovoltaic system is the most essential and suitable way. The major challenge nowadays is to store the excess energy when the demand is low, and reuse this energy later or when needed. This energy can be stored in a Storage unit called Battery. Power from grid connected solar PV units is generated in the form of few KW to several MW. Grid connected solar PV
dramatically changes the load profile of an electric utility customer. The widespread adoption of solar power generation posses significant challenges both in transient and steady state operation. This application is Valuable for both voltage and frequency regulation and also serving as a backup supply during system faults or unavailability of renewable energy. Many countries are implementing PV solar panels as they are a clean and sustainable source to meet their power demands. However, the grid connected PV unit without energy storage unit can affect the utility grid in a negative manner due to the intermittent nature of PV. In order to solve this problem, integration of energy storage system to level the output power of PV is necessary.

II PROPOSED SYSTEM

A Solar Energy System is sometimes referred to as an Alternative Energy System. And while that's true, wind, geothermal, and hydro systems are also alternative energy sources. We focus primarily on Solar and will therefore simply use the phrase Solar Energy System or Solar Power System. It will need one or more Solar Panels, a Charger Controller, a Power Inverter, and of course, Batteries.



A. BASICS OF ENERGY STORAGE

The one-line diagram of a Battery Energy Storage System (BESS) is represented as follows. The BESS is connected to grid via circuit Breaker (CB). A step down transformer is connected to reduce the voltage to the required GRID Breaker Transformer Power conversion system level of voltage for the PCS (power Conversion System). The four quadrant power conversion between the ac and dc system can be provided by the power conversion system (PCS). The status of the battery can be monitored by the BMS (Battery Management System) which is included by the protection and control of the battery.

B. STORAGE FOR ENERGY INTEGRATION

Electrical energy in an ac system cannot be stored directly. Energy can be stored by converting the ac into dc and storing it electromagnetically, electrochemically, kinetically or as potential energy. Energy storage technology usually includes a power conversion unit for conversion of energy.
Energy storage depends upon two factors i.e.
i) Amount of energy thatcan be stored in the device.

ANALYTICAL COMPARISION OF BRUSH LESS DC MOTOR USING VARIOUS PARAMETERS

C.Mohanapraiya[1],N.Prasidha Devi[2],C.Suruthy[3] D.Murugesan[4]
[1 2 3]UG Student, Paavai Engineering College, Tamilnadu, India
[4] Assistant Professor, Paavai Engineering College, Tamilnadu, India
[4]pgiecehod@paavai.edu.in

ABSTRACT

Nowadays BLDC machines electrically satisfying as a core conformation Electrical engineering .This paper deliver the analysis of dissimilar parameters which are direct to run the Brushless Direct Current (BLDC) motor at surpass speed. Various BLDC motor parameters have been analyzed in modern years due to growing demand precede to further innovations. The active characteristics of BLDC motor (speed and torque) and as well as current and voltages are gently observed and analyzed by using intelligent controller and MATLAB/SIMULINK. A simple algorithm is used to calculate motor speed incidentally by the software. Finally analysis has been designed on the basis of characteristics of stator currents, rotor speed and electromagnetic torque. The modeling of intelligent controller and simulation of BLDC motor is done using MATLAB/SIMULINK. From these results, it yield the predictability of a new system that increase the convenience to the require. The study Pointouts the paucity that has to be better. The preamble of a sophisticated coordination can overcome this and will be talented to afford a finest recital to our electrical engineering.

I INTRODUCTION

Predictable DC motors have many properties such as high efficiency and narrow torque-speed characteristics. The control of DC motor is also harmless and does not need much composite hardware. However, the chief drawback of the dc motor is the necessity of fixed maintenance. The Brushes of the mechanical commutator eventually wear out and need to be refund. The mechanical commutator has other undesirable effects such as sparks, acoustic noise and carbon particles coming from the brushes. With sharp developments in power electronics, power semiconductor technologies, modern control theory for motors and manufacturing technology for high performance magnetic materials, the Brushless DC (BLDC) motors have been widely used in many applications. BLDC Motor have many benefit over conventional DC motors like: Long operating life, High dynamic response, High efficiency, Better Speed vs. Torque characteristic, Noiseless operation ,Higher speed range and Higher Torque-Weight ratio. Due to high power to weight rate, high torque, excellent dynamic control for changeable speed applications, withdrawal of brushes and commutator make Brushless DC (BLDC) motor [1], best option for high performance applications.

Due to the withdrawal of brushes and commutator there is no Problem of mechanical wear of the shifting parts [2], [3]. As well, better heat dissipation property and capacity to work at high speeds [4-5] make them top-sawyer to the conventional dc machine. However, the BLDC motor constitutes a more difficult problem than its brushed counterpart in terms of modelling and control system design due to its several-input nature and conjugated nonlinear dynamics. Due to the simplicity in their control, Permanent-magnet brushless dc motors are more accepted and necessity in high-performance applications. A BLDC Motor is a permanent magnet synchronous motor that uses position detectors and an inverter to control the armature currents. Its armature is in the stator and the magnets are on the rotor and its operating characteristic favor those of a DC motor [1]. Instead of worn a mechanical commutator as in the conventional DC Motor [2-3], the BLDC motor engage electronic commutation which makes it a virtually maintenance free. The BLDC motor is driven by DC voltage but current commutation is done by solid-state switches. The commutation instants are resolved by the rotor position and the position of the rotor is resolute either by position sensors like Hall sensor, position encoder and resolver etc [1].or by sensorless techniques. There are two main types of BLDC Motors: Trapezoidal type and Sinusoidal type. The trapezoidal motor is a more pleasing alternative for most applications due to its easiness,lower price and higher efficiency. Here State-Space based trapezoidal back emf motor has been taken for modelling and simulation in MATLAB/SIMULINK[11].

SURVEILLANCE CAR CONTROLLER USING ARDUINO AND DTMF

M.Dhivya[1], R.Niranjanadevi[2], S.Nithya[3],G.Sangeetha[4], M.Raja[5]
[1234] UG student, Paavai Engineering College, Tamilnadu
[5] Assistant Professor, Paavai Engineering College, Tamilnadu
[5]rajamanickampec@paavai.edu.in

ABSTRACT

We converse a cost-effective four- wheeled robot having an Arduino UNO microcontroller and the android phone. Surveillance robots typically consist of a video camera, a GPS module, and GSM receiver, DTMF (Dual Tone Multi Frequency). Android mobile operated with excellent hardware satiate the above necessarily. This can be used to advantage through APIs (Application Programming Interfaces) prepare for the android at work(predicate) system. The robot can be controlled remotely from a PC through the internet and smart phone interface residing on the robot. To capture and achieve the real measure video from the robot, the inbuilt camera input of the mobile is utilized. The robot can be checksupported on optic feedback from the smart phone for lively video captures. Our idea is to make a robot to tackle the hostage condition which cannot be ansate by human being. Robotic system can complete many defense function more effectively than humans. The keil micro software vision necessity for writing Assembly level languagecode to the robot and for change the hex files to microcontroller. A robot is a significant artificial remedy. It is mainly an electromechanical machine which is by data processor, mobile programming and can capable to do the work on its own. Conventionally wireless communication to robot which custom RF revolution, which have drawbacks of limitedoperationexamine due to low frequency range. The usage of smart phone instead of RF remotes can defeated this confinement.

Key words- Surveillance robot, Android, DTMF module, Arduino, video streaming.

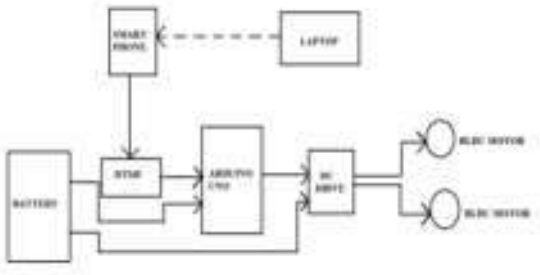
INTRODUCTION

A robot is a likely artificial remedy. It is commonly an electromechanical outfit which is by computer, mobile scheme and can powerful to do the task on its own. Conventionally wireless instruction robot practice RF revolution, which have drawbacks of limited applied range due to sensiblehostrange. The usage of mobile phones thesame of RF remotes can conquered this limitation. Here is a smart call which can be controlled by second-hand PC. The smartphone can capture audio and video information from the various environments and can be give to a remote station DTMF signal. This robotic technology has been plan in such a way that it can fulfill all the needs of armed lard and also personal assertion. The DTMF technology is custom to control the robot, the range of robot communication is not limited and it just dependon the network of portable and in present scenario, the movableflexure is everywhere.

The robotic vehicleis undeviating by wireless network system using DTMF technology. Arduino UNO ATmega328 is used to control all operations. According to the button pressed on the transmitting smart phone, the robot will move. But if any obstacle is sensed by the robot it will change its command or it will stop. Smart phone come equipped with the required features such as a GPS module, a high resolution camera and internet connectivity. By second-hand the APIs (Application Programming Interfaces) provide, we can readilyinscribe apps in a noblejustcommunicationprobably C, C++ without the complication of writing driver outline. Thus, it is our aim to build a plentifully-featured surveillance robot using gracefullyusable Android phone, which can be remotely check over the internet.

BLOCK DIAGRAM

The block diagram consists of the robot and laptop to view the pictures captured through the smart phone.



CONSTRUCTION

HYBRID INTEGRATED SOLAR AND WIND POWERGENERATION SYSTEM FOR REMOTE AREAS

M.Sudhakaran[1]V.K.Chandru[2] M.Gokulrajan[3]R.Anupriyankal[4] ,S.Rathinavel[5]
[12 3 4]UG Student, Paavai Engineering College, Tamilnadu
[5]Assistant Professor, Paavai Engineering College, Tamilnadu
[5]rathinavelselvarajpec@paavai.edu.in

ABSTRACT: *Now a day's electricity is most essential facility for the human being. One of the primary needs for socio-economic improvement in any nation in the world is the provision of reliable electricity supply systems. This work is a improvement of an indigenous technology hybrid Solar -Wind Power system that harnesses the renewable energies in Sun and Wind to generate electricity. Here, electric DC energies produced from photovoltaic and wind turbine systems are transported to a DC disconnect energy Mix controller. The controller is bidirectional connected to a DC-AC float charging-inverter system that provides charging current to a heavy duty storage bank of Battery and at the same time produces inverted AC power to AC loads. All the conventional energy resources are depleting day by day. So we have to shift from conventional to non-conventional energy resources. In this the combination of two energy resources is takes place i.e. wind and solar energy. This process reviles the sustainable energy resources without damaging the nature. We can give uninterrupted power by using hybrid energy system. Basically this system involves the integration of two energy system that will give continuous power. Solar panels are used for converting solar energy and wind turbines are used for converting wind energy into electricity. This electrical power can utilize for various purpose. Generation of electricity will be takes place at affordable cost. This paper deals with the generation of electricity by using two sources combine which leads to generate electricity with affordable cost without damaging the nature balance and essential for information communication technology infrastructure and people in rural communities.*

Key words- *electricity, hybrid, solar, power, wind, Socio –Economic development, Hybrid system, Solar and Wind Power, remote areas*

I INTRODUCTION

One of the primary needs for socio-economic improvement in any nation in the world is the condition of reliable electricity supply systems. In Nigeria, the low level of electricity generation in Nigeria from conventional fossil fuel, has been the major restraint to rapid socio-economic development especially in rural communities. Electricity is most needed for our day to day life. There are two ways of electricity generation either by conventional energy resources or by non-conventional energy resources. Electrical energy demand increases in word so to fulfill demand we have to generate electrical energy. Now a day's electrical energy is generated by the conventional energy resources like coal, diesel, and nuclear etc. The main drawback of these sources is that it produces waste like ash in coal power plant, nuclear waste in nuclear power plant and taking care of this wastage is very costly. And it also damages he nature. The nuclear waste is very harmful to human being also. The conventional energy resources are depleting day by day. Soon it will be completely vanishes from the earth so we have to find another way to generate electricity. The new source should be reliable, effluence free and economical. The non-conventional energy resources should be good alternative energy resources for the conventional energy resources. There are many non-conventional energy resources like geothermal, tidal, wind, solar etc. the tidal energy has drawbacks like it can only implemented on sea shores. While geothermal energy needs very lager step to extract heat from earth. Solar and wind are easily available in all condition. The non-conventional energy resources like solar, wind can be good alternative source. Solar energy has drawback that it could not produce electrical energy in rainy and cloudy season so we need to overcome this drawback we can use two energy resources so that any one of source fails other source will keep

WIND ENERGY BASED MOTION ELECTRIC CHARGE

R.Aravind[1]A.Ashok Kumar[2]N.Jaya Surya[3]V.Babu[4]V.Royna Daisy[5]
[1234]U.G Research Scholar, Department of EEE, Paavai Engineering College, Namakkal
[5]Assistant Professor, Department of EEE, Paavai Engineering College, Namakkal.
[1]r.aravindarun41@gmail.com,

Abstract: ***The force observation of Electric Vehicle is the need of skill of accumulation sufficient Life to race the vehicle for extensive time. The energy storage quickness of battery used in electric vehicle is very low when compare to specified fuels interest in recent automobiles. The conduct, completion and efficiency of motor driven electrifying vehicles are much correct than agent driven vehicles, at the same time electric vehicles are very much environment approving.Still electric vehicles are falling behind in the automobile industries because of the question of tankage of energy. This paper is supported on the concept of fill the batteries of thermoelectric vehicle when it is in motion or dash.This may be done by using the energy of govern which is origin by the relative point between the Vehicle and the coil ambientit. Wind turbines can be mounted on the strength structure of the Vehicle to generate electricity in such ainterval that it must not create any newattract force (rather than the existent drag force due to frontextent and Shaft friction) upon the vehicle. An elaborate aerodynamic analysis of the structure of the vehicle along with the slide pattern and absorb turbine is instant in the paper.***

Introduction: When a Vehicle moves it seerencircle resistance which are categorized in two distinctformality- frictional confection and form boiler plate. Frictional drag issue due to viscosity of publicity and formality drag spring due to change of opening pressure in the front and rear side of the Vehicle [1]. As the vehicle induce serious, it lefts the opening speed behind. A confusion or noiseappoint on the wind when a vehicle disturb through it. If motionless wind turbines are placed near the road then Life can be extracted from the regulate stream generated due to the emotion of the vehicle. Such consider had been carried out in University of Arizona by a group of students.If it is option to capture those wind flood within the Vehicle itself then it can be used to take back some of energy that has been habit to overcome the configuration drag (aerodynamic spoil) of the vehicle. If this twist energy is used to essence some power in such a street that it does not make any composing of force or thrust opposite to the clew of the propulsion of the Vehicle, then this gained energy can be worth to produce electricity to charge up the battery of the electric vehicle itself. At the same time draw can be expected to be reduced by excessively this information to the establish side (Low crushing side) of the Vehicle. Air flow smooth over the person of the vehicle cannot begin into the rear side due to spin shedding [1]. If air flow arepermit to passage in this sphere by any low, then the formality drag will be lessen by some amount and at the same delay it may be possible to generate electricity using the dynamic strength of refer. Several studies had been comprise out in this room but none of them are proved to be scientific. During the Second World War, regulate turbines are usage in wedge to charge up the batteries when they balanceresting and dip in the water. At instant it is also common to use turbines in ships, camper and vehicles when they are parked. But to split courage from a running Vehicle is quite cross as the turbine will execute as a load for the vehicle Most of the meanprove that the turbines are position over the vehicle roof without considering the reality that it will command an additional load for the vehicle and on the other agent no extent had been taken to take it. A show byRory Handel and Maxx

DUAL-BUCK BOOST FULL-BRIDGE FIVE LEVEL INVERTERS USING TWO LEVEL INDUCTOR DIVIDER WITH GRID TIED

T .Murugesan [1], M.Dhivakar[2], P.Thamaraiselvan[3], S.Ramachandran[4]

[1,2,3] U.G Student, Department of EEE, Paavai Engineering College, Namakkal-Anna University, Chennai

[4]Assistant Professor , Department of EEE, Paavai Engineering College, Namakkal-Anna University, Chennai.
[4]contacttoramachandran@gmail.com

ABSTRACT

The demand for renewable generation has increased significantly over the past years because of the considerations on fossil fuel shortage and greenhouse effect. Among various types of renewable generation, photovoltaic generation, wind generation, and fuel cells have been widely utilized. the power density of dual-buck converters needs to be improved, as well as the conversion efficiency. In this paper, the detailed derivation process of two five-level full-bridge topology generation rules are presented and explained. One is the combination of a conventional three-level full-bridge inverter, a two-level capacitive voltage divider, and a neutral point clamped branch. The other method is to combine a three-level half-bridge inverter and a two-level half-bridge inverter. The power device losses of the three-level DBFBI topology and five-level DBFBI topologies, with different switching frequencies, are calculated and compared. Both the relationship between the neutral point potential self-balancing and the modulation index of inverters are revealed. Furthermore, in order to enhance the reliability of existing five-level DBFBI topologies, an extended five-level DBFBI topology generation method is proposed.

Index Terms—Dual-buck inverter, efficiency, grid-tied inverter, multilevel

I. INTRODUCTION

Power MOSFETs have some attractive advantages, such as fast switching, low switching loss, and resistive conduction voltage drop. The switching frequency of the power converters using MOSFETs can be higher than that of the power converters using insulated-gate bipolar transistors (IGBTs), which benefits for reducing current ripples and the size of passive components. However, since the reverse recovery characteristic of the body diodes is poor, power MOSFETs cannot be used in conventional H-bridge inverters. In order to utilize the advantages of MOSFETs, soft-switching techniques are adopted conventionally. However, additional auxiliary switches, passive components, and more gate driving circuits are required in the soft-switching inverter, which lowers the reliability and increases the cost and complexity. In dual-buck inverters, no reverse recovery problem occurs in the freewheeling mode, since the independent freewheeling diode has excellent reverse recovery characteristic. In addition, power MOSFETs are used in dual-buck inverters. Therefore, the converter. Hence, the power density of conventional two-level and three-level dual-buck inverters needs to be improved. The multilevel technique is an effective way to achieve high power density. However, the number of power switches used in the dual-buck inverter is an attractive solution to achieve high efficiency for low-power grid-connected applications. Two filter inductors are required in single-phase dual-buck inverters, and both of the inductors are operating at each half cycle of the utility grid alternately, which increases the size and weight of multilevel inverter is more than that used in the conventional half-bridge and full-bridge inverters. Moreover, its control circuit is much more complicated. Thus, the tradeoff between the performance and the hardware cost should be considered in the design of multilevel inverters A five-level H-bridge inverter topology was proposed by introducing a neutral point clamped bi-directional switch (NPC branch) based on the conventional full-bridge inverter .Compared with the DNPC five-level inverter topology, the FCC five-level inverter

AIR POLLUTION CONTROL AND MONITOR INDUSTERIES USING MICROCONTROLLER AND PV CELL

R.Dhanapal[1] A.Naveen[2] A.Saranraj[3] K.Manikandanprabhu[4,] G.Uma Maheswari[5]
[1234]U.G Research Scholar
[5]Associate Professor, Department of EEE, Paavai Engineering College, Namakkal-Anna University, Chennai
[5]umagovindanpec@paavai.edu.in

ABSTRACT

The paper contains air pollution controlling and monitoring in industries using microcontroller and PV cells. The level of pollution has increased with times by lot of factors like increased vehicle use, industrialization and urbanization which results in harmful effects on human being by directly affecting health of pollution exposed to it. In order to monitor and control quality of air, the device is embedded with real-time measurement through visualization in Liquid Crystal Display (LCD) monitor. In addition, the parameters of the environment to be monitored and controlled are chosen as temperature, volume of CO, volume of CO_2 detection of Leakage of LPG. In this system consist of CO, CO_2, sensors, Electrostatic precipitator and carbon filters. An electrostatic precipitator (ESP) is a filtration device that removes fine particles, like dust and smoke, from a flowing gas using the force of an induced electrostatic charge minimally impeding the flow of gases through the unit. Carbon filtering is a method of filtering that uses a bed of activated carbon to remove contaminants and impurities using chemical absorption. Each particle/granule of carbon provides a large surface area/poor structure, allowing contaminants the maximum possible exposure to the active sites within the filter media.

1. INTRODUCTION

Air pollution is the biggest problem of every nation, whether it is developed or developing. Health problems have been growing at faster rate especially in urban areas of developing countries where industrialization and growing number of vehicles leads to release of lot of gaseous pollutants.[1] Harmful effects of pollution include mild allergic reactions such as irritation of the throat, eyes and nose :as well as some serious problems like bronchitis, heart diseases, pneumonia, lung and aggravated asthma [2]The rapid growth in development of technology is increasing day by day we face challenges like pollution, security issues, natural disaster etc. Each such sensor node has typically several parts radio transceiver with an internal antenna or connection to an external antenna, a Microcontroller, an electronic circuit for interfacing with the sensors and an energy source, usually a battery or an embedded form of energy harvesting.

There are many opportunities for using wireless sensor networks within the industries.[3] The system is based on a smart sensor micro converter equipped with a network capable application processor that downloads the pollutants level to a personal computer for further processing.[4] A wearable and wireless sensor system for Real-time monitoring of toxic environmental volatile organic Compound was developed. A wireless mesh network based on embedded microprocessors consisting of multiple sensors and multi shop communication is designed to cover a geographic area. [5] The system monitors and transmits parameters atmospheric environment to a command center. The outdoor air pollution monitoring system using microcontroller. The system integrates sensor board which employs dust, CO_2, temperature and humidity sensors. An abstract model of a system based on long-range communication was proposed. Most of the above air pollution and quality monitoring system are based on sensors that report the pollutants levels to a server via wired modem, access points. In this paper, we

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DST & DAE Government of India, New Delhi

Organized by

Department of Automobile Engineering

Certificate

This Certificate is awarded to Dr./Mr./Ms./Mrs. N. LOKESHWARAN, ASST. PROF.

of PAAVAI ENGINEERING COLLEGE for participating and presenting a paper

entitled OPTIMIZATION OF PROCESS PARAMETERS IN FRICTION STIR WELDING

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ MANIGANDAN. N, AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled EXPERIMENTAL ANALYSIS OF WEAR BEHAVIOUR OF PLASMA SPRAYED Al_2O_3 ZrO_2 & TiO_2 COATED AL6061 PLATE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ ANAND . K AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ANALYSIS OF TEMPERATURE DISTRIBUTION AND PERFORMANCE CHARACTERISTICS OF DRUM BRAKE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

Proceedings of

6th International & 27th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2016)

College of Engineering, Pune, Maharashtra, INDIA
December 16-18, 2016

Electrochemical Micromachining of Inconel 625 Alloy for Performance Study

V. Subburam[1], S. Ramesh[2], P.N. Mohan Kumar[3] and A. Srinivasan[4]

[1,3]*Department of Mechanical Engineering, Paavai Engineering College, Namakkal–637018, India*
[2]*Department of Mechanical Engineering, KCG College of Technology, Chennai–600097, India*
[4]*Department of Mechanical Engineering, AVS Engineering College, Salem–636003, India*
E-mail: [1]v_subburam@yahoo.com, [2]ramesh_1968in@yahoo.com, [3]mohankm99@yahoo.com, [4]srivankumar14@gmail.com

ARTICLE INFO

Keywords:
Inconel-625 Alloy
Taguchi Design
Electrochemical Micromachining
Machining Rate
Overcut

ABSTRACT

Non- traditional machining techniques using chemical, electrical, thermal, electrochemical energies are finding applications in machining hard-to-machine metals and alloys, especially in the micromachining domain. Electrochemical Micromachining which can machine any electrically conductive material is one of the widely applied methods considering its many inherent favorable aspects. However applying electrochemical machining in the micromachining domain is a challenging task as it involves a lot of sensitive electrical, thermal, chemical and mechanical factors that could individually and also in combination impact the process capability. Research works are going on to bring it to economical scale and make it a commercially viable process in the micro domain. The present research work involves generating micro holes on a Inconel 625 alloy specimen using the micro-ECM setup designed and developed in-house for research purpose with a pulsed power supply. Inconel is a high strength, corrosion-resistant and hard alloy which finds application in various fields. The major process parameters like applied voltage, duty cycle and electrolyte concentration are taken as input parameters for investigation. A stainless steel, conical tipped tool is used as cathode and acidified sodium nitrate solution is used as electrolyte. The process parameters are varied at three different levels and the experimental design adopted is L9 Orthogonal Array of Taguchi design. The process capability is analysed by taking the Machining Rate (operational speed) and overcut as performance parameters. The influence of the process parameters over the response parameter and also the optimum combination of the selected parameters arrived from the calculations are reported.

1. Introduction

The advancements in the development of new materials for applications in various fields have warranted research work to explore their machinability under various techniques. More so in the micro-domain where machining is a difficult task as it involves the complexity of many influencing factors. Electrochemical machining process is gaining significance in the micro-domain due to its favourable output characteristics. When this process is employed in the micromachining limit (less than 1mm), it is referred to as micro-ECM or Electrochemical Micromachining (EMM). The micromachining potentials of EMM process have been experimentally investigated and the results were promising. Further research works have been suggested for continuous refinement of the process [1]. Micro-holes and micro-channels have been machined with high accuracy on a copper sheet with an insulated micro-tool revealing the capability of the process for mass production in industries [2].

Micro-holes have been machined on Hastelloy B-2 specimen, which is a highly corrosion resistant material using ultrashort voltage pulses through electrochemical setup combined with low cost electrical circuit. It has been determined that pulse duration is a major factor influencing the resolution of the process [3]. Biocompatible materials like Nickel-Titanium Alloys, better known as Shape Memory Alloys (SMAs) used in the medical field have also been micromachined under electrochemical micromachining process. using suitable electrolyte and ultrashort voltage pulses [4]. Experiments have been conducted to investigate the electrochemical machinability of titanium and nickel based alloys. The superalloys generally showed good electrochemical machining behavior. In case of Nickel alloys, the material having more fine grained microstructure showed better electrochemical machinability [5]. Through Electrochemical micromachining process copper alloy specimen has been micro-drilled and the input parameters such as voltage, duty ratio and electrolyte concentration have been optimized for better machining rate and lesser overcut [6].

The burn-resistant Ti40 titanium alloy has been electrochemically machined using a mixed electrolyte of NaCl and KBr which ensured the quality of the output parameters. The use of pulsed current improved the quality of surface finish compared to direct current. Further it is reported that electrochemical machining could be better utilized for machining difficult-to-machine materials [7].

The difficulty in achieving localized dissolution in electrochemical micromachining has been analysedand

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ C. SURESH of PAAVAI ENGINEERING COLLEGE, NAMAKKAL. participated and presented a paper entitled WEAR RESISTANCE COMPARSION OF COATED AND UNCOATED T.C. ENGINE COMPONENTS. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/Mr./~~Ms.~~ M. VINOTH KUMAR of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled CFD ANALYSIS OF SI ENSITE BY EFFECTIVE COOLING METHOD. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

R. Annamalai

Convenor

Principal

Chairman

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ T.SATHEES AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ANALYSIS OF TEMPERATURE DISTRIBUTION AND PERFORMANCE CHARACTERISTICS OF DRUM BRAKE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./~~Mr./~~Ms./~~Mrs. R. MOHANRAJ, ASST PROF.

of PAAVAI ENGINEERING COLLEGE *for participating and presenting a paper entitled* ANALYSIS OF FAILURE IN PICK HEAD OF THE ROBOT ARM

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ MOHANRAJ R of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled PURIFICATION OF WASTE WATER FROM DIE INDUSTRIES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ VENKATESH . S . A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled DESIGN AND ANALYSIS OF CONTACT BEHAVIOR OF SOLID AND HOLLOW ROLLER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth [ICATS-2017]

Certificate

This is to certify that Dr./Prof./Mr./Ms. T. SATHEES of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled EVALUATION OF MECHANICAL PROPERTIES OF ALUMINIUM 6061 ALLOY REINFORCED WITH SiC & B_4C PARTICULATE HYBRID METAL MATRIX COMPOSITES. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

Scanned with CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ S.A. VENKATESH, ASST. PROF.

of PAAVAI ENGINEERING COLLEGE *for participating and presenting a paper*

entitled ANALYSIS OF FAILURE IN PICK HEAD OF THE ROBOT ARM

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.

Dr.S.Dinesh Kumar	Dr.SM.Kannan	Mrs.Meenakshi Annamalai
Convenor	Principal	Director

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL - 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ MOHANRAJ . R of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled DESIGN AND ANALYSIS OF CONTACT BEHAVIOUR OF SOLID AND HOLLOW ROLLER in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ T. THANGAVEL of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled FLEXURAL AND IMPACT BEHAVIOUR OF KEVLAR/E-GLASS REINFORCED EPOXY MATRIX COMPOSITES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor

Principal

Chairman

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ M. S. VIJAYANAND, ASST. PROF.

of PAAVAI ENGINEERING COLLEGE *for participating and presenting a paper entitled* SIMULTANEOUS OPTIMIZATION MICRO EDM PARAMETERS USING TAGUCHI BASED GREY ANALYSIS *in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.*

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

PAAVAI ENGINEERING COLLEGE

(Autonomous)

PACHAL, NAMAKKAL- 637 018, TAMILNADU, INDIA

ICATS-2017

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ PADMA .R.N of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled CREATING A LEARNING ENVIRONMENT IN HIGHER EDUCATION : A REVIEW OF DIFFERENT LEVELS OF LEARNING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2017) organized by Paavai Engineering College, on 17th and 18th March 2017.

Convenor | Principal | Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that Dr./Prof./Mr./Ms. SENTHILVELAN. S of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled SECURE AND SHARING OF PUBLIC HEALTH RECORDS IN CLOUD USING HYBRID ATTRIBUTE BASED ENCRYPTION in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. Ch. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

ernational Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ RATHNAKUMAR C of BHARATHIAR UNIVERSITY, COIMBATORE participated and esented a paper entitled A STUDY AND IMPLEMENTATION OF VISUAL CRYPTOGRAPHY TECHNIQUES in the International Conference on Adaptive Technologies r Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

r. M. Premkumar Principal	Dr. K.K. Ramasamy Director-Administration	Shri. CA N.V.Natarajan Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. ANNAPOORANI.V of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled SSARC ALGIORITHM COMPARES THE PERFORMANCE BETWEEN THE THREE ALGIORITHM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

M. [illegible]
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Nataraj
Chairman

AI QUAD CAMERA
Shot by priya jospin

Academic Year 2015-2016

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. SHARMILA DEVI . K AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled BLACK SPOTS IDENTIFICATION ON NATIONAL HIGHWAY 44 SALEM TO NAMAKKAL TAMILNADU FOR A STRETCH OF 62KM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ JAYAPAL . A AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled EQUILIBRIUM AND KINETIC MODELLING OF CADMIUM IONS OF REMOVAL BY ACTIVATED CARBON PREPARED FROM WASTE MATERIAL in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

ARJUN
COLLEGE OF TECHNOLOGY

THAMARAIKULAM - NEGAMAM ROAD, THAMARAIKULAM, COIMBATORE - 642120

(APPROVED BY AICTE - NEW DELHI & AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

IASET'2016

1ST NATIONAL CONFERENCE
ON
INNOVATION IN APPLIED SCIENCE, ENGINEERING & TECHNOLOGY

Certificate

This is to certify that Mr./Ms. J. Duraikannan. *presented the paper on* Comparative study of steel fibre reinforced concrete using Magnetic water and Normal water.

in the National Conference on Innovation in Applied Science, Engineering & Technology (IASET2016)

held on February 26, 2016.

Mr.S. YOGESWARAN
COORDINATOR

Dr. D. KUMAR
CONVENER

Dr. R. SURESHKUMAR
SECRETARY

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

(Approved by AICTE , New Delhi & Affiliated to Anna University, Chennai)
Deviyakurichi-636112, Attur (Tk), Salem (Dt).

ISTE & IETE sponsored International Conference on Research Advances in Communication, Computation, Electrical Science and Structures

CERTIFICATE

This is to certify that Ms./Mr. J. DURAIKKANNAN, AP/CIVIL,

of Paavai Engineering College, Namakkal

has Participated/Presented a paper in the title "Study on M-Sand as a Partial Replacement of Fine Aggregate in Concrete"

in ISTE & IETE sponsored International Conference held on 12th March 2016.

Coordinator

Prof. S.Kumar
Vice-Principal, Convenor

Dr. P.Malathi
Principal, Chairperson

ARJUN
COLLEGE OF TECHNOLOGY

IASET'2016

1ST NATIONAL CONFERENCE
ON
INNOVATION IN APPLIED SCIENCE, ENGINEERING & TECHNOLOGY

Certificate

This is to certify that Mr./Ms. J. Durairkannan *presented the paper*

on Study on Geopolymer Concrete using manufactured sand.

in the National Conference on Innovation in Applied Science, Engineering & Technology (IASET2016)

held on February 26, 2016.

Mr. S. YOGESWARAN
COORDINATOR

Dr. D. KUMAR
CONVENER

Dr. R. SURESHKUMAR
SECRETARY

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ VIGNESH. P of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled EFFECT OF CENTRILIT NC ON STRENGTH AND DURABILITY OF CONCRETE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638056 Tirupur (Dt)

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. BANUMATHY. D ASSOCIATE PROFESSOR of PAAVAI ENGINEERING COLLEGE has presented a paper titled APPLICATION OF TF-IDF APRIORI BASED APPROACH IN WEB DOCUMENT CLUSTERING OF BIGDATA in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr. K. Pandiarajan
Convenor

Dr. V. Subramania Bharathi
Principal

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. BANUMATHY. D, AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled CLUSTERING IN BANKING MANAGEMENT SYSTEM USING EFFICIENT K-MEANS ALGORITHM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. BANUMATHY . D, AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled IMPLEMENTATION OF CLASSIFICATION TECHNIQUE TO ENHANCE DATAMINING WITH BIGDATA in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

International Conference on Emerging Trends in Engineering

Certification of Presentation

This is to certify that

A. Vanitha, PG Scholar, Department of CSE

and

N.Magendiran, AssociateProfessor, Department of Computer Science and Engineering

Paavai Engineering College, India
has presented a Paper titled

An Improved Privacy Policy inference over the
socially shared images in Social Websites

in the International conference on emerging Trends in Engineering
held on February 26, 2016. The paper has been published in wwww.irjaet.com
Volume 2 Issue 2

J. Avayasi

Convener

Publisher

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./~~Prof./~~Mr./Ms.~~ MAGENDIRAN . N , ASP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled SHADOW DETECTION AND REMOVAL OF REMOTE SENSING IMAGES USING AN UNIFIED FRAMEWORK in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638056 Tirupur Dt.

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that ~~Dr./Mr./Ms.~~ MAGENDIRAN. N AP- CSE of PAAVAI ENGINEERING COLLEGE has presented a paper titled SECURE PRIVACY ASSITANT CONTENT FOR PROTECTING LOCATION BASED QUERIES USING ENHANCED SYMMETRIC KEY in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638056 Erode Dt.
National Conference on Advances in Engineering Sciences
(NCAES' 16)
CERTIFICATE
This is to certify that Dr./Mr./Ms. RENUKA DEVI. P
of PAAVAI ENGINEERING COLLEGE has presented a
paper titled DETECTING MALICIOUS NODE ATTACKS IN MANETS : USING
BLOOM FILTER APPROACH in the National Conference
on Advances in Engineering Sciences (NCAES' 16) organized by the
Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.
Dr. K. Pandiarajan
Convenor
Dr. V. Subramania Bharathi
Principal

SREE SASTHA COLLEGE OF ENGINEERING & IJETC

ICERT'2016

International Conference on Emerging and Recent Technology 2016

REF No.....

Certificate

This is to certify that Renuka Devi. P *from* Paavai Engineering College *has participated and presented a paper titled* Predict And Prevent The Bone Disease Using Data Mining Techniques *in the International Conference on Emerging and Recent Technology (ICERT 2016) held at* **SREE SASTHA COLLEGE OF ENGINEERING,** *Chennai, India on 02.04.2016.*

PRINCIPAL

EDITOR -IN-CHIEF

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638056 Tirupur (Dt)

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that Dr. /Mr. /Ms. V. MAHESKUMAR M.E AP-CSE of PAAVAI ENGINEERING COLLEGE has presented a paper titled AVOIDING THE PACKET DROPPING ATTACKS IN WIRELESS ADHOC NETWORKS USING HLA in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr. K. Pandiarajan
Convenor

Dr. V. Subramania Bharathi
Principal

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - [illegible]

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr. /Mr. /Ms. SANDHIYA.P (AP/CSE)
of PAAVAI ENGINEERING COLLEGE has presented a paper titled MEDICAL SYSTEM ENHANCEMENT USING DATAMINING TECHNIQUES IN SOFTCOMPUTING FEATURES in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

CERTIFICATE

IFERP
connecting engineers... developing research

International Conference on Internet of Things and Applications for Smart City, Tirupati

ORGANIZED BY

ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES (AITS)

AND

INSTITUTE FOR ENGINEERING RESEARCH AND PUBLICATION (IFERP)

18th - 19th March, 2016

This is to certify that **Revathi Mohan**

of **Paavai Engineering College** has done his/her excellence in

organizing the International Conference on Internet of Things and Applications for Smart City at AITS, Tirupati.

ICIOTAS 2016

ICIOTAS 2016

Program Chair
Principal (AITS, Tirupati)

Convener
(AITS Tirupati)

IFERP
Program Co-Chair

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that Dr./~~Mr.~~/~~Ms. SUPHALAKSHMI. A *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* AUTOMATED RETINAL VESSEL SEGMENTATION USING ACTIVE CONTOUR MODEL WITHOUT EDGES

Dr.S.Ramesh
Convener

Dr.K.Kaliannan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

P.A.V.A.I ENGINEERING COLLEGE
(AUTONOMOUS)
PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ SUPHALAKSHMI. A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL. participated and presented a paper entitled A STUDY ON VARIOUS FORGERY DETECTION TECHNIQUES IN DIGITAL IMAGE PHONEY in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE
(AUTONOMOUS)
PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ SUPHALAKSHMI . A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled EVENT LOGS FOR THE ANALYSIS OF SOFTWARE FAILURES : A RULE BASED APPROACH in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE
(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ SUPHALAKSHI. A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled PROMOTING TELEMEDICINE DATABASE TO FACILITATE HEALTHCARE MEDICAL UPDATION in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE
(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that Dr./~~Prof./Mr./Ms.~~ SUPHALAKSHMI . A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled CATEGORIZATION OF DRUGS BASED ON POLARITY ANALYSIS OF TWITTER DATA in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

CLASSIFICATION TECHNIQUES FOR STREAMING DATA : A SURVEY

M. Sivaranjani[1], K. Divya[2], S. Jayapriya[3], G. Madhubala[4]

1 Assistant professor, Department of Computer Science and Engineering, Paavai Engineering college, Namakkal, [illegible]

2 UG Scholar, Department of Computer Science and Engineering, Paavai Engineering college, Namakkal, [illegible]

3 UG Scholar, Department of Computer Science and Engineering, Paavai Engineering college, Namakkal, [illegible]

4 UG Scholar, Department of Computer Science and Engineering, Paavai Engineering college, Namakkal, [illegible]

ABSTRACT

Classification play essential role in stream mining. It is used to handling large volume of stream data and predict the requirements such as spam data, intrusions, malicious pages etc. Classification have been primarily focused on building the accurate models from stream data. Classifications can naturally adapt to the dynamically changing concepts which uses different algorithms to classify each stream record in a timely manner. This paper gives a survey of various classification models such as Support Vector Machine (SVM), Active Learning, etc. and discuss the merits and demerits of these models.

Keywords: Stream data mining, Classification, SVM, Novel class Detection.

1. INTRODUCTION

Classification is the necessary step to handle the data in many real world applications [1]. It is used to retrieve the patterns from the data without affecting the other features of the data. Hence it assigns a Class label to each data of the stream record in order to differentiate the normal data from the abnormal data [2]. Several Classification methodologies are Support Vector Machines (SVM) based Classification, Fast Lazy Learning based Classification, Novel Class Detection based Classification, Fast Prediction for Ensemble Models based Classification, Active learning based Classification, which produce the exact results. General classification methods are given in Figure 1.1

Fig 1.1 Data Stream Classification Methods

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth [ICATS-2016]

Certificate

This is to certify that ~~Dr~~ /Prof./~~Mr~~ /~~Ms~~ REVATHI . M, AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled A STUDY ON SUPER RESOLUTION ALGORITHMS FOR HIGH RESOLUTION IMAGES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE
(AUTONOMOUS)
PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ REVATHI . M , AP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled A STUDY ON PATTERN MATCHER ALGORITHM FOR EXACT FINGERPRINT MATCHING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr.~~/Prof./~~Mr.~~/~~Ms.~~ VIKRAM . N.R of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled DATA TRANSFER BASED ON MULTIPLECHANNELS USING DISR IN TELECOMMUNICATION FOR CDN in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ VIKRAM .N.R of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled TOPOLOGICAL MODELING AND CLASSIFICATION OF MAMOGRAPHIC DATA USING ARTIFICIAL NEURAL NETWORK in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE 638 052 TAMILNADU INDIA

Estd : 1984

Transform Yourself

School of Communication and Computer Sciences

Department of Information Technology

KONGU
Assuring the Best

CERTIFICATE

This is to certify that Mr./~~Ms.~~/~~Dr.~~ N. R. VIKRAM

of PAAVAI ENGINEERING COLLEGE has presented a paper

entitled A SYSTEMATIC BIG DATA STUDY USING HDFS AND MAPREDUCE

in the DBT Sponsored National Conference on "Advanced Computational Intelligence Techniques for Big Data in Biomedicine and its Applications" on 28.12.2015 and 29.12.2015.

Convener

HOD - IT

Dean - SCCS

Principal

SASURIE

COLLEGE OF ENGINEERING

Vijayamangalam - 638 056

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./~~Mrs.~~ VIKRAM. N.R (AP/CSE) of PAAVAI ENGINEERING COLLEGE has presented a paper titled A FINANCE GAIN SCHEME WITH GUARANTEED QUALITY OF SERVICE IN CLOUD COMPUTING in the National Conference on Advances in Engineering Sciences (NCAES'16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE 638 052 TAMILNADU INDIA

School of Communication and Computer Sciences

Department of Information Technology

CERTIFICATE

This is to certify that Mr./Ms./Dr. S. LAVANYA

of PAAVAI ENGINEERING COLLEGE has presented a paper

entitled A SYSTEMATIC BIG DATA STUDY USING HDFS AND MAPREDUCE

in the DBT Sponsored National Conference on "Advanced Computational Intelligence Techniques for Big Data in Biomedicine and its Applications" on 28.12.2015 and 29.12.2015.

Convener HOD - IT Dean - SCCS Principal

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam - 638056 Tirupur (Dt)

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./~~Ms.~~ SIVAGANESH. M of PAAVAI ENGINEERING COLLEGE has presented a paper titled BOTNET DETECTION USING FIREFLY ALGORITHM in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr. K. Pandiarajan
Convenor

Dr. V. Subramania Bharathi
Principal

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr. /Mr. /Ms. SIVAGANESH. M, M.E
of PAAVAI ENGINEERING COLLEGE has presented a paper titled AN INTELLIGENCE SPATIO TEMPROL DATA FROM HIGH UTILITY DIRECTIONAL ROUTE USING BIG DATA in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ S'IVARAMAN. S, AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ENHANCING THE SECURITY MEASURES OF SYSTEM ADMINISTRATORS IN LAB TO PREVENT ILLEGAL ACCESS & DATA LEAKAGE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE

COLLEGE OF ENGINEERING

Vijayamangalam - 638056 Tiruppur (Dt.)

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. SIVARAMAN.S of PAAVAI ENGINEERING COLLEGE has presented a paper titled LABORATORY ACCESS CONTROL in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

KONGU ENGINEERING COLLEGE

(Autonomous)

PERUNDURAI ERODE 638 052 TAMILNADU INDIA

School of Communication and Computer Sciences

Department of Information Technology

CERTIFICATE

This is to certify that ~~Mr.~~/Ms./~~Dr.~~ M. REVATHI

of PAAVAI ENGINEERING COLLEGE has presented a paper

entitled A SYSTEMATIC BIG DATA STUDY USING HDFS AND MAPREDUCE

in the DBT Sponsored National Conference on "Advanced Computational Intelligence Techniques for Big Data in Biomedicine and its Applications" on 28.12.2015 and 29.12.2015.

Convener HOD - IT Dean - SCCS Principal

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~ Ms. Dr. R. ARANGASAMY *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* A NOVEL ALGORITHM FOR REGISTRATION OF 3-D VOLUMETRIC ULTRASOUND (US) & MR USING RAPTOR FOR IMAGE-GUIDED NEUROSURGERY

Dr.S.Ramesh
Convener

Dr.R.Kaliamman
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

SASURIE
COLLEGE OF ENGINEERING

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. Dr. Fathima Jabeen of Paavai Engineering College has presented a paper titled An Enhanced Cluster Head Compression in Wireless Sensor Network in the National Conference on Advances in Engineering Sciences (NCAES'16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)
Deviyakurichi-636112, Attur (Tk), Salem (Dt).

ISTE & IETE sponsored International Conference on
Research Advances in Communication, Computation,
Electrical Science and Structures

CERTIFICATE

This is to certify that Ms./Mr. Dr. P. RAMNATHAN.

of PAAVAI ENGINEERING COLLEGE

has Participated/Presented a paper in the title ANALYSIS OF BRAIN ACTIVITY FOR EEG SIGNAL USING IBAHT & MLPNN.

in ISTE & IETE sponsored International Conference held on 12th March 2016.

Coordinator

Prof. S.Kumar
Vice-Principal, Convenor

12/3/16
Dr. P.Malathi
Principal, Chairperson

VIVEKANANDHA
INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai, ISO 9001 - 2008 Certified)
Elayampalayam - 637 205, Tiruchengode (Tk.), Namakkal (Dt.), Tamilnadu, India.
Website : www.vietw.ac.in, www.icccet.org

INTERNATIONAL CONFERENCE ON
COMPUTING, COMMUNICATION AND ELECTRICAL TECHNOLOGIES

icccet 3rd edition
30th & 31st March 2016

CERTIFICATE

This is to certify that ~~Dr/Mr/Ms.~~ Dr. A.S. KANDASAMY

from PAAVAI ENGINEERING COLLEGE Presented/~~Published/Participated~~

a paper entitled INTELLIGENT FEED ADJUSTING SYSTEM FOR POULTRY

in the International Conference on Computing, Communication and Electrical Technologies - 2016 held on 30th & 31st March - 2016.

Convenor | Principal | Chairman & Secretary

In Association with

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ KUMARGANESH . S , ASP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled AN EFFICIENT IMAGE HAZE REMOVAL AND IMAGE COMPRESSION USING DISCRETE WAVE TRANSFORM in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ KUMARGANESH.S, ASP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled REALIZATION OF 9/7 AND 10/18 FILTER ARCHITECTURES FOR COMPUTING DWT USING RESULT BIASED DISTRIBUTED ARITHMETIC in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE
COLLEGE OF ENGINEERING

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. A.SAMUNDEESWARI
of Paavai Engineering College has presented a paper titled AN ENHANCED CLUSTER HEAD COMPRESSION IN WIRELESS SENSOR NETWORK in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

Narasu's Sarathy Institute of Technology

Approved by AICTE & Affiliated to Anna University
Salem Bengaluru Highway NH - 7, Poosaripatty, Omalur Taluk, Salem - 636305.
Ph: 04290-249661/62, admin@nsit.edu.in, www.nsit.edu.in

National Conference on

Innovation in Engineering and Technology

1st April , 2016

Certificate

This is to certify that A. SAMUNDEESWARI

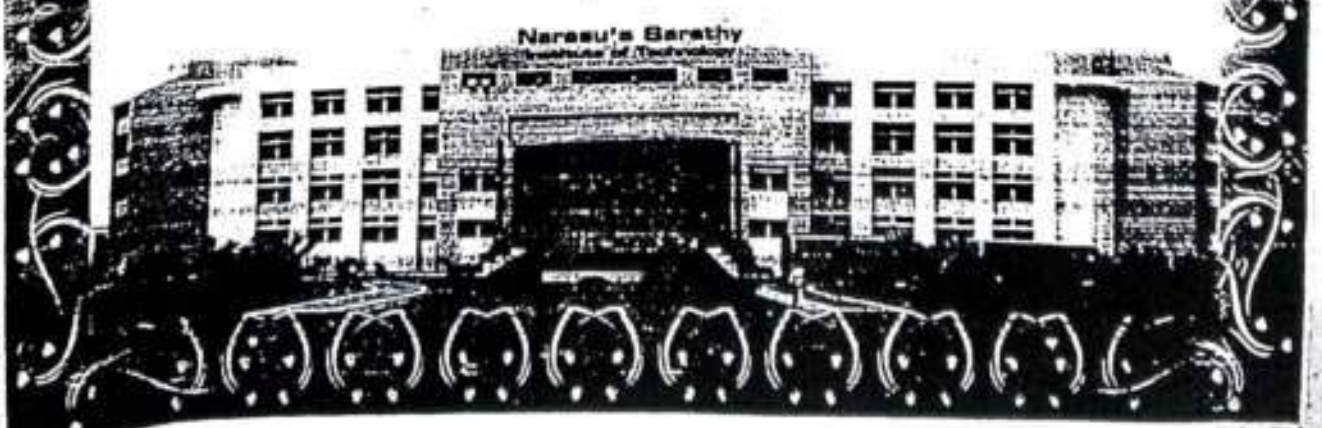
PRAVAI ENGINEERING COLEGE

has participated and presented the technical paper titled

DATA AGGREGATION IN EFFICIENT MANNER WITH PATH CONSTRAINS MOBILE

in National Conference on Innovation in Engineering and Technology organized by Narasu's Sarathy Institute of Technology on 1.4.2016.

Organizing Secretary	Dr. G. Venkatesan Principal, NSIT	Mr. B. Nitish Harihar Chairman, NSIT



PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ VIJAYAKUMAR . S AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL. participated and presented a paper entitled INTEND AND EXECUTION OF A EQUIVALENT TURBO DECODER FOR WIRELESS SENSOR NETWORK. in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE
COLLEGE OF ENGINEERING

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. S. Vijayakumar of Paavai Engineering College has presented a paper titled Error Detection and Correction Based on Soft Decision RSED Solomon Coding in the National Conference on Advances in Engineering Sciences (NCAES'16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

VIVEKANANDHA
INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai, ISO 9001 – 2008 Certified)
Elayampalayam – 637 205, Tiruchengode (TK), Namakkal (Dt), Tamilnadu, India.
Website: www.vietw.ac.in, www.icccet.org

INTERNATIONAL CONFERENCE ON
COMPUTING, COMMUNICATION AND ELECTRICAL TECHNOLOGIES

icccet 3rd edition
30th & 31st March 2016

CERTIFICATE

This is to certify that ~~Dr/Mr~~/Ms. C. GANESH

from PAAVAI ENGINEERING COLLEGE Presented/~~Published~~/~~Participated~~

a paper entitled RFID BASED ON WIRELESS AUTHENTICATION SYSTEMS in the International Conference on Computing, Communication and Electrical Technologies - 2016 held on 30th & 31st March - 2016.

N. [signature]
Convenor

[signature]
Principal

[signature]
Chairman & Secretary

In Association with

VIVEKANANDHA
INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai, ISO 9001 - 2008 Certified)
Elayampalayam - 637 205, Tiruchengode (Tk.), Namakkal (Dt.), Tamilnadu, India.
Website : www.vietw.ac.in, www.icccet.org

INTERNATIONAL CONFERENCE ON

COMPUTING, COMMUNICATION AND ELECTRICAL TECHNOLOGIES

icccet 3rd edition

30th & 31st March 2016

CERTIFICATE

This is to certify that ~~Dr/Mr~~/Ms. P. JOHN VIVEK

from PAAVAI ENGINEERING COLLEGE Presented/~~Published~~/~~Participated~~

a paper entitled ZIGBEE BASED FACTORY FIRE ALARM SYSTEMS

in the International Conference on

Computing, Communication and Electrical Technologies - 2016 held on 30th & 31st March - 2016.

N. [signature]
Convenor

[signature]
Principal

[signature]
Chairman & Secretary

In Association with

VIVEKANANDHA
INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai, ISO 9001 - 2008 Certified)
Elayampalayam - 637 205, Tiruchengode (Tk), Namakkal (Dt), Tamilnadu, India.
Website : www.vietw.ac.in, www.icccet.org

INTERNATIONAL CONFERENCE ON
COMPUTING, COMMUNICATION AND ELECTRICAL TECHNOLOGIES

icccet 3rd edition
30th & 31st March 2016

CERTIFICATE

This is to certify that ~~Dr/Mr~~/Ms. G. NANDHA KUMAR

from PAAVAI ENGINEERING COLLEGE Presented/~~Published~~/~~Participated~~

a paper entitled IMAGE COMPRESSION AND DECOMPRESSION USING LINEAR CODING in the International Conference on

Computing, Communication and Electrical Technologies - 2016 held on 30th & 31st March - 2016.

Convenor | Principal | Chairman & Secretary

In Association with

BHARATHIYAR INSTITUTE OF ENGINEERING FOR WOMEN

(Approved by AICTE , New Delhi & Affiliated to Anna University, Chennai)
Deviyakurichi-636112, Attur (Tk), Salem (Dt).

ISTE & IETE sponsored International Conference on Research Advances in Communication, Computation, Electrical Science and Structures

CERTIFICATE

This is to certify that Ms./Mr. E. SANGEETHA

of PAAVAI ENGINEERING COLLEGE

has Participated/Presented a paper in the title ANALYSIS OF BRAIN ACTIVITY FOR EEG SIGNAL USING LBDWT AND MLPNN

in ISTE & IETE sponsored International Conference held on 12th March 2016.

Coordinator

Prof. S.Kumar
Vice-Principal, Convenor

12/3/16
Dr. P.Malathi
Principal, Chairperson

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam, Trichy, Tamilnadu, India, Pin:621 215

ISO 9001 REGISTERED

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs....SANGEETHA.E.....

....DEPARTMENT...OF...E.C.E.....has Presented/Partcipated in the

paper Entitled.....DESIGN..OF..MULTIPURPOSE...FREQUENCY...RECONFIGURABLE.....

...MICROSTRIP...PATCH....ANTENNA.....held on 28th

February 2015.

Dr.G.VIJAY CHAKARAVARTHY
Principal,Co-ordinator

Smt.E.GANDHIMATHY PALANISAMI
Treasurer & Correspondent

Er.N.SELVA KUMAR
Secretary

Shri.G.SEKAR
Founder & Chairman

SASURIE
COLLEGE OF ENGINEERING

National Conference on Advances in Engineering Sciences
(NCAES' 16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. G. Sangeetha
of Paavai Engineering College has presented a paper titled Implementation of 16 bit Decoder using ASIC method in the National Conference on Advances in Engineering Sciences (NCAES'16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr.K.Pandiarajan
Convenor

Dr.V.Subramania Bharathi
Principal

Narasu's Sarathy Institute of Technology

Approved by AICTE & Affiliated to Anna University

Salem Bengaluru Highway NH - 7, Poosaripatty, Omalur Taluk, Salem - 636305.

Ph: 04290-249661/62, admin@nsit.edu.in, www.nsit.edu.in

National Conference on

Innovation in Engineering and Technology

1st April , 2016

Certificate

This is to certify that R. MOHANA PRIYA AP/ECE

PAAVAI ENGINEERING COLEGIE

has participated and presented the technical paper titled

DATA AGGREGATION IN EFFICIENT MANNER WITH PATH CONSTRAINTS MOBILE SINKS

in National Conference on Innovation in Engineering and Technology organized by Narasu's Sarathy Institute of Technology on 1.4.2016.

Organizing Secretary

Dr. G. Venkatesan
Principal, NSIT

Mr. B.Nitish Harihar
Chairman, NSIT

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr.~~/Prof./~~Mr.~~/~~Ms.~~ MOHANAPRIYA . R ..... of PAAVAI ENGINEERING COLLEGE , NAMAKKAL ..... participated and presented a paper entitled A MULTI-CLASSIFIERS BASED APPROACH FOR PLUMB HANDOFF PROCESS IN WIRELESS SENSOR NETWORKS : EXPOSITION & PROBABLE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr.~~/~~Prof.~~/Mr./~~Ms.~~ KUMARAVEL . A AP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled CONSIGNMENT ESTIMATION GEOGRAPHIC STEERING AROUND ATTACHMENT GAPS IN MANET in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof.~~/Mr./~~Ms.~~ KUMARAVEL . A AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled OPTIMAL DATA TRANSMISSION FOR QOS PROVISION IN HYBRID WIRELESS NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr~~./Ms. M. SUDHA of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ENERGY EFFICIENT & HIGH SPEED CARRY SELECT ADDER OPERATING OVER A WIDE RANGE OF SUPPLY VOLTAGES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. SUDHA . M AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ENHANCED CLUSTERING METHOD FOR EFFICIENT WIRELESS SENSOR NETWORKS in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

SASURIE
COLLEGE OF ENGINEERING

National Conference on Advances in Engineering Sciences (NCAES' 16)

CERTIFICATE

This is to certify that Dr. /Mr. /Ms. M. Sudha of Paavai Engineering College has presented a paper titled An enhanced Cluster head Compression in Wireless Sensor Networks in the National Conference on Advances in Engineering Sciences (NCAES' 16) organized by the Sasurie Research and Development Cell held on 4.4.2016 & 5.4.2016.

Dr. K. Pandiarajan
Convenor

Dr. V. Subramania Bharathi
Principal

VIVEKANANDHA
INSTITUTE OF ENGINEERING AND TECHNOLOGY FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai. ISO 9001 - 2008 Certified)

Elayampalayam - 637 205, Tiruchengode (Tk.), Namakkal (Dt.), Tamilnadu, India.

Website : www.vietw.ac.in, www.icccet.org

INTERNATIONAL CONFERENCE ON

COMPUTING, COMMUNICATION AND ELECTRICAL TECHNOLOGIES

icccet 3rd edition

30th & 31st March 2016

CERTIFICATE

This is to certify that ~~Dr/Mr~~/Ms. M. SUDHA

from PAAVAI ENGINEERING COLLEGE *Presented/~~Published~~/~~Participated~~*

a paper entitled INTELLIGENT FEED ADJUSTING SYSTEM FOR POULTRY *in the* ***International Conference on Computing, Communication and Electrical Technologies - 2016*** *held on 30th & 31st March - 2016.*

N. [signature]
Convenor

[signature]
Principal

[signature]
Chairman & Secretary

In Association with IBM Career Education, ICTACT, ORACLE

Narasu's Sarathy Institute of Technology

Approved by AICTE & Affiliated to Anna University

Salem Bangalore Highway NH - 7, Poosaripatty, Omalur Taluk, Salem - 636305.

Ph: 04290-249661/62, admin@nsit.edu.in, www.nsit.edu.in

National Conference on

Innovation in Engineering and Technology

1st April , 2016

Certificate

This is to certify that S. LOGANATHAN

PAAVAI ENGINEERING COLLEGE

has participated and presented the technical paper titled

QUALITY ENHANCEMENT OF CONTENT-AWARE IMAGE COMPRESSION FOR PORTABLE DEVICE

in National Conference on Innovation in Engineering and Technology organized by Narasu's Sarathy Institute of Technology on 1.4.2016.

M. R. 1/4/16
Organizing Secretary

7/4/16
Dr. G. Venkatesan
Principal, NSIT

Mr. B. Nitish Harihar
Chairman, NSIT

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. P. KRISHNA SUDHA *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* A QoS ORIENTED VERTICAL HANDOFF SCHEME FOR WiMax / WLAN OVER LAY NETWORKS.

Dr.S.Ramesh
Convener

Dr.K.Kalianman
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam, Trichy, Tamilnadu, India, Pin:621 215

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs...K. SARANYA.....

....DEPARTMENT...OF...E.C.E.....has Presented/Participated in the

paper Entitled.DENOISING..OF..CORRUPTED..IMAGES..USING..MODIFIED..CLUSTERING..ALGORITHM

AND..ADAPTIVE..FUZZY..SWITCHING..MEDIAN..FILTER..FOR..SEGMENTATION..OF...held on 28th
LOW LEVEL SALT AND PEPPER NOISE

February 2015.

Dr.G.VIJAY CHAKARAVARTHY	Smt.E.GANDHIMATHY PALANISAMI	Er.N.SELVA KUMAR	Shri.C.SEKAR
Principal, Co-ordinator	Treasurer & Correspondent	Secretary	Founder & Chairman

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. C.VANAJA. *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* AN EFFICIENT SHARED MEMORY (MUTEX) IN MULTIPROCESSOR SOC

Dr.S.Ramesh
Convener

Dr.K.Kaliannan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam,Trichy,Tamilnadu,India,Pin:621 215

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs...S.SANTHOSH.....

....DEPARTMENT...OF...ECE.....has Presented/Participated in the

paper Entitled..DETECTING....PRIMARY..SECONDARY..AND..TRIPLE..JPEG..COMPRESSION

..HAVING...SAME...QUANTIZATION....MATRIX.....held on 28th

February 2015.

Dr.G.VIJAY CHAKARAVARTHY
Principal,Co-ordinator

Smt.E.GANDHIMATHY PALANISAMI
Treasurer & Correspondent

Er.N.SELVA KUMAR
Secretary

Shri.G.SEKAR
Founder & Chairman

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. G.NAVEEN *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* ON CHIP INTERLOCKS WITH DISPARING TOLERANT USING CMS CONDITIONAL SCHEME FOR LOW POWER

Dr.S.Ramesh
Convener

Dr.K.Kaliamman
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. S.R. THIRUVASAGAM *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* RAIN ATTENUATION PREDICTION & MODELING FOR LINE OF SIGHT LINKS ON TERRESTRIAL PATHS IN SOUTH AFRICA

Dr.S.Ramesh
Convener

Dr.K.Kalaiarasan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam, Trichy, Tamilnadu, India, Pin:621 215

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs...S.ASWINI.....
...DEPARTMENT...OF...ECE.....has Presented/Participated in the paper Entitled...MEDICAL...IMAGE...COMPRESSION...2-D...DISCRETE.....
...WAVELET.....TRANSFORM.....held on 28th February 2015.

Dr.G.VIJAY CHAKARAVARTHY
Principal, Co-ordinator

Smt.E.GANDHIMATHY PALANISAMI
Treasurer & Correspondent

Er.N.SELVA KUMAR
Secretary

Shri.G.SEKAR
Founder & Chairman

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr./~~Ms. R. GOPAL *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* CROSS LAYERING IN MOBILE ADHOC NETWORK DESIGN.

Dr.S.Ramesh
Convener

Dr.K.Kaliamnan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam, Trichy, Tamilnadu, India, Pin:621 215

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs. M. SABARISH
DEPARTMENT OF ECE has Presented/Participated in the paper Entitled LUMINANCE COMPRESSION TECHNIQUES FOR LOCAL TONE MAPPING held on 28th February 2015.

Dr.G.VIJAY CHAKARAVARTHY	Smt.E.GANDHIMATHY PALANISAMI	Er.N.SELVA KUMAR	Shri.G.SEKAR
Principal, Co-ordinator	Treasurer & Correspondent	Secretary	Founder & Chairman

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that ~~Dr./Mr.~~/Ms. N.GAYATHIRI *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* A NOVEL ALGORITHM FOR REGISTRATION OF 3-D VOLUMETRIC ULTRASOUND (US) & MR USING RAPTOR FOR IMAGE-GUIDED NEUROSURGERY

Dr.S.Ramesh
Convener

Dr.R.Kalianan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

VETRI VINAYAHA
COLLEGE OF ENGINEERING & TECHNOLOGY

Thottiam, Trichy, Tamilnadu, India, Pin:621 215

INTERNATIONAL CONFERENCE ON
ENGINEERING & APPLIED SCIENCE-ICEAS 2015

CERTIFICATE

This is to Certify that Mr/Mrs. R. VITRIKANI ..... DEPARTMENT OF E.C.E ..... has Presented/Participated in the paper Entitled ENHANCED SURFACE REVALUATION OF CASTE IRON USING MACHINE VISION ..... held on 28th February 2015.

Dr.G.VIJAY CHAKARAVARTHY	Smt.E.GANDHIMATHY PALANISAMI	Er.N.SELVA KUMAR	Shri.C.SEKAR
Principal, Co-ordinator	Treasurer & Correspondent	Secretary	Founder & Chairman

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. POONGODI . K . K . ASP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled LOW VOLTAGE MOTOR DESIGN AND APPLICATION in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering [illegible] on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)

PACHAL, NAMAKKAL - 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr.~~/Ms. POONGODI . K.K . ASP of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled DIPPING THE OVER VOLTAGES AND FAULT CURRENT IN AN ELECTRIC POWER SYSTEM THROUGH ACTIVE TYPE SFCL in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

EXPLORE TO INVENT

C.NO_114

CMR Institute Of Technology

* Approved by AICTE, Permanently affiliated to JNTUH, NBA Accredited *
(Kandlakoya (v), Medchal Road, Hyderabad - 501 401)

International Conference on Researches in Electrical Power and Industrial Engineering

ICREPIE-16

This is to certifying that Mrs,POONKODI.K.K, ASSOCIATE PROFFESOR/EEE of PAAVAI ENGINEERING COLLEGE, TAMIL NADU has presented a paper titled "TO IMPROVED POWER SYSTEM IMMOVABALITY AT VOLTAGE UNSTABLE CONDITION BY RSFCL" in the ICREPIE-16 organized by the Department of Electrical & Power Engineering on 18th March, 2016.

CHAIRPERSON CONVENER PRINCIPAL

By Jawaharlal Nehru Technological University Hyderabad

Printed On 19/03/2016

MUTHAYAMMAL ENGINEERING INSTITUTIONS

Rasipuram - 637 408. Namakkal Dt., Tamilnadu, India.

ICETS'16

CERTIFICATE OF PARTICIPATION

This is to certify that

A.Rathinam
Paavai Engineering College
has presented

DESIGN AND ANALYSIS OF BUCK/BOOST CONVERTER WITH QZSI FOR WIND ENERGY CONVERSION SYSTEM

at

3rd INTERNATIONAL CONFERENCE ON ENGINEERING TECHNOLOGY AND SCIENCE

held on 18th & 19th March 2016

Muthayammal Engineering Institutions, Rasipuram, Namakkal Dt , Tamilnadu.

Convener 19/3/16

Principal
MEI

Principal
MEI

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms.~~ THANGAVEL. T AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled ANALYSIS OF TEMPERATURE DISTRIBUTION AND PERFORMANCE CHARACTERISTICS OF DRUM BRAKE in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./Mr./Ms./Mrs.~~ C.SURESH, AP/MECH

of PAAVAI ENGINEERING COLLEGE *for participating and presenting a paper entitled* LOW VELOCITY IMPACT ANALYSIS FOR COMPOSITE PLATES

in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.

Dr.S.Dinesh Kumar
Convenor

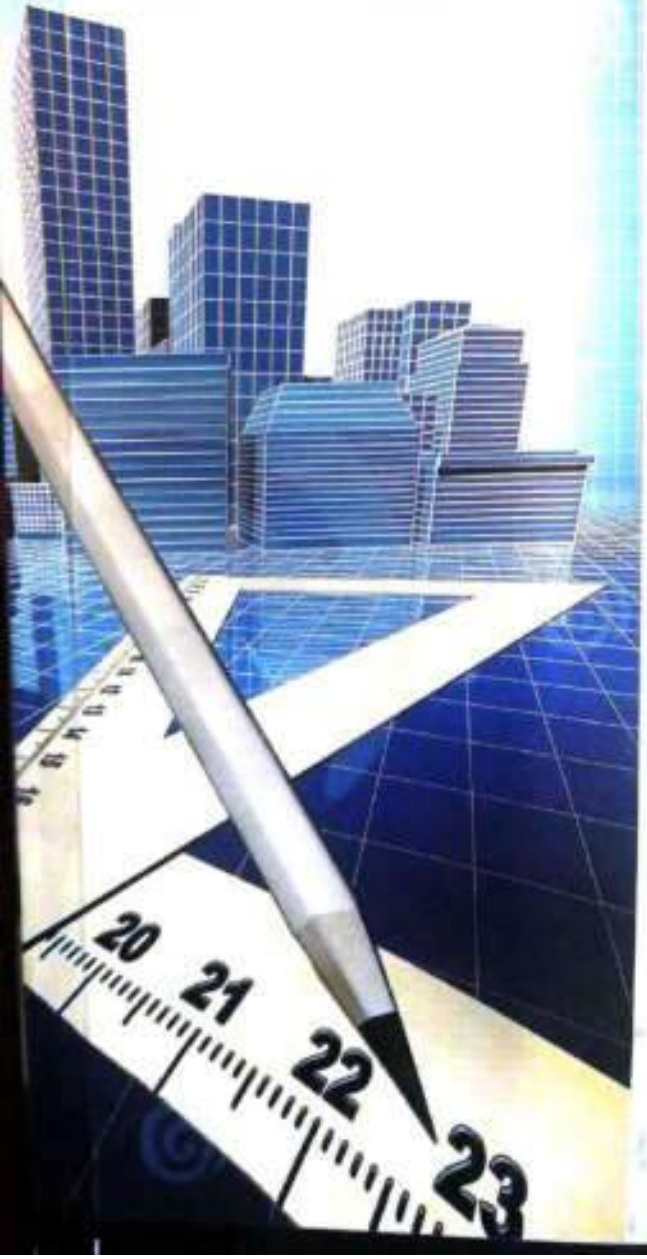
Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

Revised Edition

BASIC CIVIL AND MECHANICAL ENGINEERING

P. ELUMALAI
I. KAYALVIZHI



INCLUDES

Part A Questions & Answers
Part B Questions
Anna University Questions

Sri maruthi PUBLISHERS
KNOWLEDGE IS POWER

Our Other Useful Books

Second Semester

English Work Book - II
Engineering Physics - II
Engineering Chemistry - II
Basic Civil And Mechanical Engineering
Engineering Mechanics
Electric Circuits and Electron Devices & Electric Circuit Laboratory
Basic Electrical & Electronics Engineering
Computer Practice Laboratory - II
Computer Aided Drafting and Modeling Laboratory

Higher Semester

Object Oriented Programming
Data Structures and Algorithms
Environmental Science and Engineering
Computer Architecture
Operating System
Composite Materials
Data Mining & Warehousing
Strength of Materials

Sri Maruthi Publishers
43/36. N-Block, 6th Street, Agasthier Nagar,
Villivakkam, Chennai-49.
Mb: 9710130243, 9444421457, 9994784517

ISBN 978-93-80757-37-7

Basic Civil & Mechanical Engineering

For Second Semester B.E./B.Tech. Students
(Common to All Circuit Branches)

As per the Common Syllabus of Anna University
(Chennai, Coimbatore, Trichy, Tirunelveli & Madurai)

P. ELUMALAI
Senior Lecturer,
Department of Mechanical Engineering,
Paavai Engineering College,
Namakkal.

I. KAYALVIZHI
Assistant Professor
Department of Civil Engineering,
MAM College of Engineering,
Trichy.

SRI MARUTHI PUBLISHERS
43/36, N-Block, 6th Street, Agasthier Nagar,
Villivakkam, Chennai - 600 049.
Mobile: 9710130243, 9444421457, 9994784517
e.mail: srimaruthipub@gmail.com

ENGINEERING GRAPHICS

(Common to All Branches)

REVISED EDITION Autocad Commands

S. Prabhakaran
Dr. V. Subburam
Dr. M. Makesh

MARUTHI PUBLISHERS
Writing For Your Success

Scanned by CamScanner

ENGINEERING GRAPHICS

(Common to all branches)

REVISED EDITION

S. Prabhakaran, M.E.,
Associate Professor
Paavai Engineering College(Autonomous)
Namakkal

Dr. V. Subburam, M.E., Ph.D.,
Professor
Paavai Engineering College(Autonomous)
Namakkal

Dr. M. Makesh, M.E., Ph.D.,
Professor
Paavai Engineering College(Autonomous)
Namakkal

MARUTHI PUBLISHERS
WRITING FOR YOUR SUCCESS

No.5/7B, Ramakrishnapuram, Villivakkam, Chennai - 600 049
9080 505073, 9962 777 903, 81223 38899 maruthipub@gmail.com

Scanned by CamScanner

ACKNOWLEDGMENT

We would like to place on record our deepest gratitude to the management of Paavai Institutions, our Chairman **CA N.V. Natarajan**, and Correspondent **Mrs. Mangai Natarajan**, Who have always inspired and motivated us to achieve sucess in challenging jobs for their continuous support and encouragement in preparting this book.

We are also indebted to our Director-Administration **Dr. K.K. Ramasamy** for his inputs to enhance the contents. We are grateful to **Dr.M.Premkumar,** Principal Paavai Engineering College for his valuable suggestions for the production of this book.

We would like to express our sincere thanks to **Prof. A.P.Sivasubramaniam,** HOD / Mechanical, Paavai Engineering College, **Prof. Mohan,** Academic co-ordinator, I year, **Dr. P. Jayakumar,** HOD/Maths, **Dr. G. Raja,** HOD/ Chemistry for their helping hand in preparing this book.

We are very thankful to all our colleagues, who directly or indirectly have gave their assistance, support and encouragement in bringing out this book successfully.

We also extend our gratitude to our friends and family for their moral support. We are greatly thankful to **"M/s. Maruthi Publishers"** for kindly accepting to publish this text book.

- Authors

Scanned by CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ VENKATESH.S.A of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled PURIFICATION OF WASTE WATER FROM DIE INDUSTRIES in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned by CamScanner

KARPAGA VINAYAGA COLLEGE OF ENGINEERING AND TECHNOLOGY

GST Road, Chinnakolambakkam, Padalam - 603308, Maduranthagam Taluk, Kanchipuram District, Tamilnadu.

National Conference on

Contemporary Research in Advanced Material Science - CRAMS 2016

In Association with

DBT & DAE, Government of India, New Delhi

Organized By

Department of Automobile Engineering

Certificate

This Certificate is awarded to ~~Dr./~~Mr./~~Ms./Mrs.~~ T. THANGAVEL, ASST. PROF.

of PAAVAI ENGINEERING COLLEGE *for participating and presenting a paper entitled* ANALYZING THE MECHANICAL PROPERTIES OF HYBRID COMPOSITE MATERIALS *in National Conference on Contemporary Research in Advanced Material Science (CRAMS-2016) held at Karpaga Vinayaga College of Engineering & Technology, Kanchipuram, Tamilnadu during 04th & 05th February 2016.*

Dr.S.Dinesh Kumar
Convenor

Dr.SM.Kannan
Principal

Mrs.Meenakshi Annamalai
Director

MUTHAYAMMAL ENGINEERING COLLEGE

(Approved by AICTE, New Delhi, Accredited by NBA & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dt, Tamilnadu

SCIENCE FORUM

DEPARTMENT OF SCIENCE AND HUMANITIES

Science Forum

ILLUMINATOR'16

NATIONAL SCIENCE DAY CELEBRATION

CERTIFICATE OF PARTICIPATION

This is to certify that Mr. / ~~Ms.~~ D.R.P.RAJARATHNAM of

PAAVAI ENGG COLLEGE has presented a paper entitled

NANO TECHNOLOGY

in the National Science Day celebrations organized by Department of Science and Humanities, Muthayammal Engineering College on 27th Feb 2016.

Co-Ordinator	President	Principal
Prof. S. Elavarasan	Dr.G.Sudarmozhi	Dr.S.Nirmala

MUTHAYAMMAL ENGINEERING COLLEGE

(Approved by AICTE, New Delhi, Accredited by NBA & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dt, Tamilnadu

SCIENCE FORUM

DEPARTMENT OF SCIENCE AND HUMANITIES

Science Forum

ILLUMINATOR'16

NATIONAL SCIENCE DAY CELEBRATION

CERTIFICATE OF PARTICIPATION

This is to certify that Mr. / ~~Ms.~~ S.MOHANKUMAR of

PAAVAI ENGG COLLEGE has presented a paper entitled

NANO TECHNOLOGY

in the National Science Day celebrations organized by Department of Science and Humanities, Muthayammal Engineering College on 27th Feb 2016.

Co-Ordinator	President	Principal
Prof. S. Elavarasan	Dr.G.Sudarmozhi	Dr.S.Nirmala

MAHENDRA COLLEGE OF ENGINEERING

(Affliated to ANNA UNIVERSITY,Approved by AICTE, Accrediated by NAAC)
Salem-Chennai Highway , Minnampalli, Salem-636106

NATIONAL CONFERENCE ON
EMERGING TRENDS IN MECHANICAL AND MECHATRONICS ENGINEERING

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms . S.MOHANKUMAR

has ~~participated~~/presented paper titled. SQUARE HOLE DRILLING MACHINE *in the National Conference of Emerging Trends In Mechanical and Mechatronics Engineering, (.* ETMME - 2K16 *) held at Mahendra College Of Engineering, Salem-636106, Tamilnadu, on* 07.04.16

CONVENER

DEAN-ACADEMIC

PRINCIPAL

MAHENDRA COLLEGE OF ENGINEERING

(Affliated to ANNA UNIVERSITY,Approved by AICTE, Accrediated by NAAC)
Salem-Chennai Highway , Minnampalli, Salem-636106

NATIONAL CONFERENCE ON
EMERGING TRENDS IN MECHANICAL AND MECHATRONICS ENGINEERING

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms . D.R.P.RAJARATHNAM
has ~~participated~~/presented paper titled. SQUARE HOLE DRILLING MACHINE *in the National Conference of Emerging Trends In Mechanical and Mechatronics Engineering, (.* ETMME - 2K16 *) held at Mahendra College Of Engineering, Salem-636106, Tamilnadu, on* 07.04.16

CONVENER DEAN-ACADEMIC PRINCIPAL

MAHENDRA COLLEGE OF ENGINEERING

(Affliated to ANNA UNIVERSITY,Approved by AICTE, Accrediated by NAAC)
Salem-Chennai Highway , Minnampalli, Salem-636106

NATIONAL CONFERENCE ON
EMERGING TRENDS IN MECHANICAL AND MECHATRONICS ENGINEERING

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. D.R.P. RAJA RATHNAM
has participated/presented paper titled. EARLY FLASH FLOOD DETECTION AND USING PROGRAMMING GSM ALERT SYSTEM *in the National Conference of Emerging Trends In Mechanical and Mechatronics Engineering, (* EIMME - 2K16 *) held at Mahendra College Of Engineering, Salem-636106, Tamilnadu, on* 07-04-16

CONVENER DEAN-ACADEMIC PRINCIPAL

MAHENDRA COLLEGE OF ENGINEERING

(Affliated to ANNA UNIVERSITY,Approved by AICTE, Accrediated by NAAC)
Salem-Chennai Highway , Minnampalli, Salem-636106

NATIONAL CONFERENCE ON
EMERGING TRENDS IN MECHANICAL AND MECHATRONICS ENGINEERING

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. V.K. GOBINATH
has participated/presented paper titled. EARLY FLASH FLOOD DETECTION AND USING PROGRAMMING GSM ALERT SYSTEM *in the National Conference of Emerging Trends In Mechanical and Mechatronics Engineering, (.* ETMME - 2K16 *) held at Mahendra College Of Engineering, Salem-636106, Tamilnadu, on* 07-04-16

CONVENER DEAN-ACADEMIC PRINCIPAL

MAHENDRA COLLEGE OF ENGINEERING

(Affliated to ANNA UNIVERSITY,Approved by AICTE, Accrediated by NAAC)
Salem-Chennai Highway , Minnampalli, Salem-636106

NATIONAL CONFERENCE ON
EMERGING TRENDS IN MECHANICAL AND MECHATRONICS ENGINEERING

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. K. SANTHOSH *has participated/presented paper titled.* EARLY FLASH FLOOD DETECTION AND USING PROGRAMMING GSM ALERT SYSTEM *in the National Conference of Emerging Trends In Mechanical and Mechatronics Engineering, (.* ETMME-2K16 *) held at Mahendra College Of Engineering, Salem-636106, Tamilnadu, on* 07-04-16

CONVENER

DEAN-ACADEMIC

PRINCIPAL

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJETCSE

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. R.CHANDRAN *from* PAAVAI ENGINEERING COLLEGE *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* TRANSPERENT TOUCA SCREEN USING GRAPHANE

Dr.S.Ramesh
Convener

Dr.K.Kaliamman
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

SRI RAMAKRISHNA ENGINEERING COLLEGE

(Autonomous Institution, Accredited by NAAC with 'A' Grade, ISO 9001:2008 Certified,
Approved by AICTE and Permanently Affiliated to Anna University Chennai)
Vattamalaipalayam post, Coimbatore- 641 022.

National Conference on
ADVANCES IN MECHANICAL AND MATERIALS ENGINEERING
(AIMME 2016)

Certificate No:

Certificate

This is to certify that ~~Dr./Prof./Mr./Ms~~ V.K.GOBINATH
of PARVAI ENGINEERING COLLEGE *has presented the paper titled* SEMI ENERGIZED BICYCLE
in the National Conference on ***Advances in Mechanical and Materials Engineering*** *held on 7th April 2016 conducted by the Department of Mechanical Engineering.*

KNOWLEDGE PARTNERS:

Nurture Engineering Skills | TTP TRANS TECH PUBLICATIONS Inc. Materials Science & Engineering

CONVENOR

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/~~Ms~~ .....S. MOHAN KUMAR..... of ...PAAVAI....ENGINEERING....COLLEGE.....has participated and presented the technical paper titled .....AUTOMATIC....BRAKING...SYSTEM..... .....USING...ULTRASONIC..SENSOR..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/~~Ms~~ .....V.K. GOBINATH..... of ...PAAVAI....ENGINEERING....COLLEGE.....has participated and presented the technical paper titled .....AUTOMATIC....BRAKING..SYSTEM..... .....USING..ULTRASONIC..SENSOR..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/~~Ms~~ .....A.SATHISH.KUMAR..... of ...PAAVAI....ENGINEERING....COLLEGE.....has participated and presented the technical paper titled .....AUTOMATIC...BRAKING..SYSTEM..... .....USING....ULTRASONIC...SENSOR..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/Ms .....D.R.P. RAJA RATHNAM..... of ...PAAVAI....ENGINEERING....COLLEGE.....has participated and presented the technical paper titled ..AUTOMATIC....LPG...BOOKING..... .....USING....PROXIMITY.....SENSOR..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/~~Ms~~ .....S. MOHAN KUMAR..... of ...PAAVAI....ENGINEERING....COLLEGE.....has participated and presented the technical paper titled ..AUTOMATIC....LPG...BOOKING..... .....USING....PROXIMITY....SENSOR..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

VELAMMAL ENGINEERING COLLEGE

Velammal Nagar, Ambattur Redhills road, Chennai – 66.

DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

NCTIA – 2016

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/~~Ms~~ ..... V.K. GOBINATH ..... of ... PAAVAI ... ENGINEERING ... COLLEGE ..... has participated and presented the technical paper titled .. AUTOMATIC ... LPG ... BOOKING .... USING ... PROXIMITY ... SENSOR ..... in the **4th National conference** on **TRENDS IN INSTRUMENTATION AND AUTOMATION** organized by Department of Electronics and Instrumentation Engineering, Velammal Engineering College, Chennai-66 on April 7, 2016.

CONVENER

HEAD OF THE DEPARTMENT

PRINCIPAL

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./~~Mr./~~Ms.~~ ARUNBABU AP of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled BOILER OPERATION CONTROL THROUGH PLC AND SCADA in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Natarajan
Chairman

Scanned with CamScanner

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr.~~/Prof./~~Mr.~~/~~Ms.~~ VENKATESAN . B , A.P of PAAVAI ENGINEERING COLLEGE , NAMAKKAL participated and presented a paper entitled SECURITY ISSUES ASSOCIATED WITH BIG DATA IN CLOUD COMPUTING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administrati

Shri.CA **N.V.Natarajan**
Chairman

SRI SHANMUGHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE,New Delhi and Affiliated to Anna University,Chennai)

NATIONAL CONFERENCE

Innovations in Computing and Communication ICC 16

Department of CSE and ECE

This is to certify that Mr./ Ms. .....M.PUSHPALATHA, M.E.,.....of

.....PARVAI.....ENGINEERING.....COLLEGE.....MAI.....

Prize/Participated in .....OPTIMIZING GOVERNMENT GROCERY FOR PUBLIC SERVICES..... in the National Conference, ICC-2K16, held on 2nd April,2016.

HOD 14/4/16

Principal

ICC2K16

SRI SHANMUGHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE,New Delhi and Affiliated to Anna University,Chennai)

NATIONAL CONFERENCE

Innovations in Computing and Communication ICC 16

Department of CSE and ECE

This is to certify that Mr./ Ms. S. SINDHURALA of PAAVAI ENGINEERING COLLEGE HAS Prize/Participated in A SECURE DEDUPLICATION IN HYBRID CLOUD COMPUTING in the National Conference, ICC-2K16, held on 2nd April,2016.

HOD 2/4/16

Principal 4/4/16

ICC2K16

SRI SHANMUGHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

NATIONAL CONFERENCE

Innovations in Computing and Communication ICC 16

Department of CSE and ECE

This is to certify that Mr./ ~~Ms.~~ B. PRABUSHANKAR, M.Tech. of PAAVAI ENGINEERING COLLEGE has IOT BASED VECHICLE NUMBER PLATE RECOGNITION SYSTEM in the National Conference, ICC-2K16, held on 2nd April, 2016.

HOD 2/4/16

Principal 2/4/16

ICC2K16

SRI SHANMUGHA

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE,New Delhi and Affiliated to Anna University,Chennai)

NATIONAL CONFERENCE

Innovations in Computing and Communication ICC 16

Department of CSE and ECE

This is to certify that Mr./ Ms. .....S. SARAVANA KUMAR.....of

.....PAAVAI.....ENGINEERING.....COLLEGE.....M.A.E.....

ROBUST WATER MARKING BY SVD OF WATERMARK EMBEDDED IN DWT-DCT & DCT

Prize/Participated in WAVELET..GRAYMN..TRANFORM..OF..HOST..IMAGE.. in the National

Conference, ICC-2K16, held on 2nd April,2016.

2/4/16

Principal

ICC2K16

Scanned By Scanner Go

PAAVAI ENGINEERING COLLEGE

(AUTONOMOUS)
PACHAL, NAMAKKAL- 637 018, TAMILNADU

ICATS-2016

International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016)

Certificate

This is to certify that ~~Dr./Prof./Mr./~~Ms. PUSHPALATHA . M of PAAVAI ENGINEERING COLLEGE, NAMAKKAL participated and presented a paper entitled MOBILE EDGE COMPUTING in the International Conference on Adaptive Technologies for Sustainable Growth (ICATS-2016) organized by Paavai Engineering College, on 13th & 14th May, 2016.

Dr. M. Premkumar
Principal

Dr. K.K. Ramasamy
Director-Administration

Shri. CA N.V.Nataraja
Chairman

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that Dr./Mr./Ms. M. PUSHPALATHA *from* PAAVAI ENGINEERING COLLEGE, NAMAKKAL *has participated in the* ***International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)*** *held at* ***K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016*** *and also presented a paper entitled* WORMHOLE ATTACK DETECTION ALGORITHM IN WIRELESS NETWORK CODING SYSTEM

Dr.S.Ramesh
Convener

Dr.K.Kaliannan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE

K.S.R. COLLEGE OF ENGINEERING

(Autonomous)

Tiruchengode - 637 215

IJET

INTERNATIONAL CONFERENCE ON ADVANCES IN ELECTRICAL, ELECTRONICS AND COMPUTATIONAL INTELLIGENCE (ICAEECI'16)

CERTIFICATE

This is to certify that Mr. B. PRABHU SHANKAR M.TECH., MBA from PAAVAI ENGINEERING COLLEGE has participated in the *International Conference on Advances in Electrical, Electronics and Computational Intelligence (ICAEECI'16)* held at *K.S.R. College of Engineering, Tiruchengode, Tamilnadu on 22nd February 2016* and also presented a paper entitled 24/7 SECURED TRAVELLING USING GPS MONITORING SYSTEM - ALIVEON

Dr.S.Ramesh
Convener

Dr.K.Kalaiarasan
Principal

R. Jayaprakash
Chief-in-Editor
IJETCSE